

MANAGEMENT ASSESSMENT OF THE OILSEED
GROWERS COOPERATIVE PROJECT (OGCP)

FINAL REPORT

Prepared by:

Norman J. Smallwood and Ron W. Hankins

Under IQC #PDC-000-I-00-4088-00, Work Order #4

Checchi and Company
1730 Rhode Island Avenue, N.W.
Washington, D.C. 20036

October 15, 1985

CONTENTS

	page
<u>Section I</u>	
Conclusions	1
Recommendations	5
Discussion	6
Appendices:	
I: Operational Grant Program	19
II: Government Restraint	22
 <u>Section II</u>	
Memo	1
Assessment Issues/Questions	5
Attachments:	
A: Prior Evaluations of OGCP	15
B: Factors Contributing to Increased Expenditures in PY-7 for Production Enhancement	17
C: OGCP Processing Plant Status	22
D: Working Capital	24
E: Loan and Grant Components	28
F: Additional Oil Requirements	31
Major Issues Confronting OGCP	34
 <u>Tables</u>	
Section I	24
1 Annual Performance Summary	
1a Mid-term Performance Summary	
2a Oil Shipments Schedule	
2b Account Fund Flow	
3 Working Capital Requirements	
4 Expansion of OGCP Investment	

Tables

Section II

39

- 1 Income/Acre from Groundnut, Saurashtra.
- 2 Income/Acre from Soybean, Madhya Pradesh
- 3 Price of Groundnut, Saurashtra
- 4 Price of Soybean, Madhya Pradesh
- 5 Groundnut Yield, Saurashtra
- 6 Soybean Yield, Madhya Pradesh
- 7 Investment/Acre of Groundnut, Saurashtra
- 8 Investment/Acre of Soybean, Madhya Pradesh
- 9a Input Use for Groundnut, Saurashtra (irrigated)
- 9b Input Use for Groundnut, Saurashtra (unirrigated)

Projected Profitability Statements, 1985-1989

49

Special Report

R.W. Hankins
N.J. Smallwood

30 September, 1985

Subject: Assessment of the Oilseed Growers Cooperative Project (OGCP)

Basis: Tour of operations in Gujarat, Madhya Pradesh, Andhra Pradesh, Tamil Nadu, and Karnataka and discussion with CLUSA, NDDB, USAID, State Government, and Federation officials 8 - 29 September, 1985.

Conclusions:

1. The basic project strategy of vertical integration from agricultural production to finished product sales is valid.
2. Objectives of the OGCP are consistent with the USAID support program.
3. Management of and technical resources provided to the OGCP by the Oilseeds-Vegetable Oil Wing (OVOW) of the National Dairy Development Board (NDDB) are sound, efficient, and productive.
4. Resource support to and monitoring of the OGCP by the Cooperative League of the USA (CLUSA) are thorough and effective.
5. Status reports on the OGCP provided by CLUSA are too detailed and technical for USAID's overview and administrative role - confusion in interpretation results.
6. Farmer confidence in and support of the OGCP has a solid base and has grown to the point of prompting expansion of the project.
7. Production enhancement operations (cooperative society formation and extension services) progress

reflects a carefully selected, properly trained, and committed staff.

8. Seed quality and quantity and farm implement availability are aggravating constraints in agricultural production.

9. Procurement progress is steady and is expected to lead processing capacity except during periods of extreme drought.

10. Limiting procurement exclusively to member farmers may not be in the best interest of the OGCP including member farmers.

11. Turn-over of procurement working capital is expected to range between 2.0 and 2.7 times per year by 1989.

12. Oilseed storage facilities are being erected at remote village sites to minimize post-harvest degradation and loss and to optimize the size and location of processing plants.

13. Existing processing plant upgrading and expansion and new facility planning, design and construction are being effectively managed by OGCP.

14. Processing plant operating performance is acceptable for the particular circumstances.

15. Ninety-seven percent of India's existing vegetable oil processing plants (accounting for 65% of the total processing capacity) have a capacity of under 10 MT per day, are inefficient, produce under-processed (poor quality) oil, and will not be competitive with the OGCP plants.

16. Long-term utilization of the OGCP processing plants should be at least 80%, and short term utilization should be near 100 percent except for areas incurring severe drought.

17. Edible oil in the market place is of relatively low quality and is frequently illegally blended or adulterated - consumer confidence is low.

18. Most edible oil sold is dispensed from the seller's bulk container into the buyer's personal container.

19. OGCP's program to produce consistently high-quality oil and utilize innovative packaging and marketing techniques should yield excellent results.

20. Process, product, and package development are key factors in OGCP's integrated program.

21. Required process, product, and package technology and expertise are readily available in the USA and other countries to support OGCP's program.

22. Working capital is an essential part of the project for the following:

- a. Production inputs inventory of seed, fertilizer, herbicide, insecticide, fungicide, etc.
- b. Procurement inventory of oilseeds
- c. Operating plant consumables inventory (30 days)
- d. In-process inventory of oil, meal, etc.
- e. Finished product inventory
- f. Receivables

23. Project self-sufficiency can be achieved by the end of 1989 if a total of 267,573 MT of vegetable oil

are authorised (107,573 MT over the original commitment) to cover the initial project scope plus the working capital requirements outlines and the cost increase due to inflation (9 percent per year through PY6).

24. Development of domestically consumed groundnut meal and soy meal (protein) edible products is in the best interest of both India and the USA.

25. Government of India (GOI) policy, while well intended, is in some cases counter-productive to both the OGCP and the Indian consumer(see Appendix II)

26. GOI oil pricing and import policy are probably the most significant vulnerabilities of the project.

27. State governments are increasingly supportive of the OGCP after recognizing the long-term ineffectiveness of purely government supported extension services, agricultural research activities, and cooperative efforts in the oilseeds sector.

28. Project expansion (OGCP part II) to include the enlargement of the production areas, within the participating states and the formation of a cooperative federation in a new state like Uttar Pradesh, and the provision of additional processing capacity is strategically sound.

29. Continuity understanding and appropriate expertise are the key needs of USAID to properly administer the OGCP.

30. Potential benefits of the OGCP are of such profundity to merit careful attention for possible re-application in other sectors and locations.

31. Dynamics of the OGCP can best be described as broad-based entrepreneurship with sensitivity to the needs and development of people.

Recommendations:

1. Expand the commitment of PL 480 Title II vegetable oil to a total 267,573 MT for support of the OGCP (107,573 MT increase over the original commitment).

2. Initiate a transfer authorization for the immediate call forward of the 33,809 MT balance of vegetable oil already committed to preclude serious disruption of the project.

3. Take action to achieve authorization for the additional 107,573 MT of vegetable oil required, and call the oil forward according to the demand projections for each project year (see table 2a).

4. Approve the proposed project expansion (part II) which will require an additional 27,677 MT of vegetable oil for funding (295,250 MT total vegetable oil contribution for the total project).

5. Support the OGCP's effort to obtain required technology and expertise in the areas of process, product, and package development (see appendix I).

6. Adopt the attached executive management type reporting format to effectively monitor the project status without getting bogged down in excessive technical detail (see table 1).

7. Give diplomatic support by appropriate consultation with the GOI on the policy restraints which are impeding the project.

8. Provide continuity of understanding and appropriate

expertise for the USAID Mission to administer the project by obtaining either a permanent staff member for the duration of the project or an independent senior advisor to overview the project on an annual assessment basis until completion in accordance with the agreements signed between Government of USA, Government of India, USAID, CLUSA and NDDB for the project.

Discussion:

1. Project Strategy: The strategy of developing a vertically integrated system from oilseed production to finished product sales is validated by the conditions/opportunities outlined as follows:
 - a. Seventy-four percent of the Indian population are economically and socially deprived rural villagers with small land holdings (about 2.5 acres average) for agricultural production as the only source of income.
 - b. For many generations, the majority of the village farmers have been in the financial grips of the money lenders/traders with no means of escape.
 - c. Government programs, both state and national, have been less effective in delivering meaningful support to the farmers in the oilseeds sector.
 - d. The percapita consumption of vegetable oil (fat) in India is currently at 6.12 kg per year compared to a recommended level of 12.41 kg for proper nutrition.
 - e. Vegetable oil is the second largest import expenditure of India (second to petroleum).
 - f. Most of the processing capacity of the country

is inefficient and yields poor quality oil.

g. The vegetable oil product choices available to the consumers with respect to quality, variety, package size, and convenience are limited.

h. Utilization of oilseed protein for human consumption is minor; however, the diet of the predominately vegetarian population is protein deficient.

i. Distribution and marketing of vegetable oil is not cost efficient.

Confronted with the conditions/opportunities outlined, a vertically integrated oilseed program is the obvious right choice.

2. Objectives: Simply stated, the objectives of the project are to increase the productive capacity and economic strength of the oilseed farmer for the benefit of the total population in terms of food supply (vegetable oil and protein) delivery, quality, cost, and quantity.

3. Management and Technical Resources: The NDDB/OVOW is an organization of professional excellence - clear mission, impeccable standards, self-motivated, disciplined approach, and apparently free of political manipulation. There is significant depth of leadership and technical skills. The organization is capable of meeting the project objectives. Perhaps the most remarkable aspect of the organization is the ability to attract top notch talent from India's educated and professional population and focus their energies on developing the basic infrastructure of the country - the farmer. It is both a noble and vital task.

4. CLUSA Role: In monitoring the conduct of and providing technical input to the OGCP, it is evident that CLUSA has done a creditable job. The technical consultants which CLUSA has obtained for input to processing plant and storage facility design is outstanding as reflected by the completed product. Each member of the CLUSA staff has excellent knowledge of the project details and appear to have an effective professional working relationship with the NDDB/OVOW staff.

5. CLUSA Report Format to USAID: CLUSA's communication with USAID has been encumbered by the format used. It appears that too much technical detail has been provided instead of a top executive type summary report (table 1 and 1a).

6. Farmers Confidence: In visiting with farmers from about 200 villages and 14 cooperative societies, it is evident that the OGCP has a solid base of farmer confidence and support. It has not only been able to stabilise oil prices but also to pass on a greater share of consumer rupee to the oilseed growers. Furthermore, the positive reputation of the program has now reached farmers in areas not originally included in the project. Consequently, plans have been developed to expand the program scope by ten percent.

7. Production Enhancement: The success of cooperative society formation and extension services is primarily dependent upon the quality of interaction between the individual farmer and the project field officer. Careful attention has been given to selecting, training and developing personnel who will be effective in and committed to the task. The rate of society expansion has been determined by the ability

to provide competent field personnel. The OGCP is uncompromising on this point which is the proper response. The Institute of Rural Management, founded in Anand in 1979, has become an effective resource for providing competent personnel.

8. Seeds and Farm Implements: High-yielding, disease/insect/drought-resistant seed varieties are in great demand. Under state and national government sponsorship in the past, development has been slow. The OGCP in collaboration with the state federations has been able to make significant progress in seed development, growing, and supply. A national seed grid is being formed to assure adequate seed supply. Accelerated progress in seed development can be expected.

Effective, inexpensive farm implements applicable to small farms and animal (bullock) power is in short supply. Neither the private sector developments nor the national governments R&D programs have been productive. Seed drills and harvesting equipment are especially needed. The OGCP is initiating some practical developmental work in the farm implement area.

9. Procurement Progress: Except for cases of severe drought, procurement progress is meeting expectations. In most state federations, procurement will slightly lead processing capacity until 1990. Groundnut yield from the current crop will be very low and adversely impact procurement. The practice of insurance cropping and multi-oilseed cropping needs to be encouraged to minimise the impact of drought.

10. Limiting Procurement: Some state federations exclude purchase of oilseed from non-member farmers.

In years of short supply, this practice is counter-productive if it results in under-utilization of processing capacity and disruption to the marketing program.

11. Procurement Working Capital Turn-over: Detailed analysis of procurement, storage and processing of oilseeds in each state federation reflects the following by 1989:

	<u>Turnover (times per year)</u>
a. High	2.7
b. Low	2.0
c. Average	2.3

12. Oilseed Storage: Careful consideration has been given to determining the optimum location and size of processing plants and satellite storage facilities. Transportation costs have been included in the analysis. Consequently, a program has been initiated to provide satellite storage at the appropriate village locations. The design and construction of these storage facilities are excellent.

13. Processing Plants: Some existing processing plants are being acquired, renovated and expanded on an opportunity basis. The quality of work being done on the renovation and expansion is excellent. Four new plants were visited. The state of progress ranged from partially constructed to fully operational. The new plants are comparable in quality and efficiency to similar type facilities in the USA and Europe. Plants are typically sized in the range of 200 to 400 MT of oilseed per day with provisions made for future expansion. The new soybean processing plant under construction at Ujjain in Madhya Pradesh is outstanding in layout, design, and construction.

14. Processing Plant Operating Performance: From an examination of the operating results for each plant visited, the performance was within the range of normal expectation for the respective stages of operation. Operating results, including capacity for new, refurbished, and expanded plants, follow a "learning curve" from start up to ultimate achievement of design expectations. The OVOW staff was advised to develop (project) "learning curves" for each plant based on the particular conditions and report performance and available capacity accordingly. For a new plant, depending on complexity, two to four years can be required to achieve design performance.

15. Competitive Processing Plants: In essence, the OGCP plants have little competition now and in the near future. While there are currently about 15,000 operating oilseed processing plants in India, the majority are small, inefficient, and produce poor quality product. Consequently, as the OGCP processing capacity comes on stream, the marginal operations will fold. Except for those people directly impacted, the "shake-out" will be of benefit to both the farmers and the consumers.

16. Long-Term Processing Capacity Utilization: In view of the market potential, processing competitive advantage, procurement opportunities, and production improvements, it should be possible to achieve near 100 percent capacity utilization for both the short and long term. Except for unusual circumstances like severe drought, the worst case capacity utilization should be at least 80 percent. Key to achieving maximum processing utilization is to keep the sub-systems (production, procurement, processing and sales) in balance. Break-even capacity utilization for the OGCP processing plants is about 50 percent.

17. Vegetable Oil Quality in the Market Place: From visiting several markets and talking to consumers, it is quite apparent that the majority of vegetable oil currently in the market place is of low quality. Furthermore, random sampling and analysis of oil obtained from markets by the OVOW reflects a high degree of illegal blending and frequent adulteration. Consumer confidence in vegetable oil quality is very low. Currently, consumer options to be assured of purchasing good quality vegetable oil are few.

18. Dispensing and Packaging Vegetable Oil: The affluent members of the Indian population purchase vegetable oil in containers - mostly metal containers because the present options are limited. The poor members of the population obtain oil in their personal container from the seller's bulk supply. This can be improved by adopting innovative packaging through use of laminated paper packs. This will call for volumetric filling instead of the present Indian practice of filling by weight. It would facilitate filling and handling. Appropriate changes are needed in Government of India policy to correct the problem.

19. OGCP's Marketing Opportunity: The OGCP has an extraordinary opportunity to capture a 10 percent share of the domestic vegetable oil market. The key factors for achieving and maintaining viable market penetration are:

a. Set and maintain high standards for product quality- do not compromise!

b. Take precautions to avoid misuse of the OGCP's products by vendors - do not take chances with either the brand name's or organization's reputation.

c. Implement the innovative marketing ideas currently being developed -

- 1) Offer a variety of vegetable oil products.
- 2) Provide package options - size and type.
- 3) Use advertising including television.
- 4) Build a customer base in marketing the USAID/CLUSA supplied oil.
- 5) Use "Avon" ladies for door to door marketing.

d. Utilize the milk cooperatives resources for marketing vegetable oil -

- 1) Use the milk cooperatives' transportation system to backhaul vegetable oil for marketing in the villages.
- 2) Use the milk cooperative's shops/outlets for marketing vegetable oil.

e. Promote rural marketing through the oilseeds cooperative societies.

20. Process, Product and Package Development: In addition to the significant opportunity to develop an expanded product line in vegetable oils, considerable opportunity exists to develop edible vegetable protein products from soybeans and groundnuts. The potential for both vegetable oil and protein products is of such magnitude to merit considerable attention to appropriate process, product, and package development. The Amul Dairy Cooperative is currently producing from imported soy flour an innovative extruded product for feeding poor children in need of protein supplement. Furthermore, the Indian Military has agreed to purchase edible soy protein products from the OGCP (M.P. OILFED). Groundnut butter and groundnut butter products, margarine, and spreads should have market potential in India if properly

introduced. Finally, attention should be given to making value-added products from by-products. For example, lecithin from degumming soybean oil can be processed for both food and industrial applications, and soap products can be produced from the raw soapstock by-product of caustic refining vegetable oils.

21. Technology Availability and Application: The NDDB /OVOW R&D effort is devoted exclusively to practical adaptation and application which is exactly the right focus. The technology and expertise required in the area of process, product, and package technology have been developed and are readily available in the USA and other countries.

22. Working Capital: For a venture of this magnitude involving raw material (oilseed) procurement, in-process oil and meal inventory, process consumables inventory, finished product inventory, and receivables, working capital is the largest financial outlay. The project cannot achieve viability without adequate working capital. The total NDDB/OVOW contribution to the working capital requirements of the state federations should be Rs.500 million. By project end, the total NDDB/OVOW contribution will be entirely applied to the core component of working capital (see table 3). The remaining portion of the core component is the responsibility of the state federations from their respective funds. The fluctuating portion of the state federations' working capital requirements will be financed through commercial banks.

23. Project Self-Sufficiency: Analysis of cash flow reflects that the original project will reach self-sufficiency by mid-1989 (PY10) including the ability to service the long-term debt. However, to fund the

working capital requirements and the cost increase due to inflation, a total of 267,573 MT of vegetable oil will be required for the project or 107,573 MT over the original commitment.

24. Domestic Consumption of Groundnut and Soybean Meal: Currently, part of the groundnut and soybean meal being produced in India from the OGCP operations is being exported and is competing in an already depressed world market. India has critical need for edible vegetable protein and could consume a significant quantity of groundnut and soybean meal produced domestically if the process and product technology were available to produce edible quality product. Thus, it is in the interest of both the GOI and the USA to support the development of the OGCP's capability to produce edible protein products.

25. GOI Policy Implications: Several GOI policies and state government practices are counter-productive to the OGCP and the Indian consumer. Action is needed to bring these issues to the attention of the appropriate government bodies for review and revision. The particular issues of concern are outlined in appendix II.

26. GOI Oil Pricing and Import Policy: The most significant vulnerability of the OGCP is the GOI oil pricing and import policy. To support the development of domestic self-sufficiency in oilseeds via the OGCP and the private sector, the GOI's pricing and import policy should be directed to stabilizing prices at a remunerative level. However, the short-term pressure could result in lower prices due to an over supply of vegetable oil in the world market if a near-sighted, expedient response is taken.

27. State Governments' Support of the OGCP: From

conversations with state government officials about and reviewing the recent state government policy decisions on the OGCP, there is evidence of strong and growing support. The basis for the state government support is found first in the mounting enthusiasm of the farmers for the OGCP. Second, it is generally recognized that the state government sponsored cooperatives, extension services, agronomy centers and test farms in the oilseed sector have not been productive. The assessment team's inspection of several state operated projects confirmed the lack of viability. Consequently, there is a growing trend for the states to transfer the agronomy centers, oil testing labs, and experimental farms to the OGCP. Finally, state government officials are now pressing for the formation of OGCP cooperatives in areas not covered by the original project scope. The OVOW has prepared a preliminary plan to provide expanded coverage to areas which would be viable (see appendix II).

28. Project Expansion (OGCP Part II): It is now strategically important to expand the project to cover additional production areas, both within and beyond the present participating states, form a cooperative federation in a new state like Uttar Pradesh, and provide more processing capacity. The details of the proposed expansion are outlined as follows.

<u>State</u>	<u>Expansion Components</u>
1. Andhra Pradesh	-4 Cooperative districts
2. Tamil Nadu	-1 Cooperative district -Virudachalam Plant expansion
3. Karnataka	-Additional Coop Societies
4. New state like Uttar Pradesh	-State Cooperative Federation -7 cooperative districts -1 processing plant

Farmers in other state along with the key government officials are pressing for a OGCP cooperative federation. The project expansion (Part II) would require a total financial outlay of Rs.317.84 million or 27,677 MT of vegetable oil. The proposed expansion would have a project life of six years starting in PY8 and finishing in PY13 as summarized in Table 4. Approval of the expansion is needed during PY7 (1985-86) to undertake the pre-project preparation for initiating implementation at the beginning of PY8.

29. USAID Administration of OGCP: Because of the somewhat unique role tht the USAID Mission plays in the OGCP, the ability to completely comprehend and track the project has been difficult due to the technical complexity and the personnel assignment changes within the USAID Mission. Appropriate expertise is needed on behalf of the USAID Mission to assure effective interaction with and administration of the OGCP. The expertise can be provided by either adding a permanent member to the USAID Mission staff in Delhi or by obtaining an independent senior advisor to make an annual overview assessment for the duration of the project in accordance with the agreements signed between Government of USA, Government of India, USAID, CLUSA and NDDB for the project.

30. Potential Benefits and Reapplication: From close exposure to the OGCP, the developmental potential of the concept is enormous. Re-application of the methodology should be possible in a broad range of activities including other agriculturals commodities like fruits and vegetables, irrigation, forestry, rural electrical power generation, health care, transportation, etc.

31. Dynamics of the OGCP: The dynamics involved in the OGCP embrace the best modern management techniques (high, balanced concern for both people and production), promote the formation of close-knit teams, and motivate by utilizing broad-based entrepreneurship. In essence, the system brings the best out of people.

APPENDIX I

Operational Grant Program

The OGCP has benefited from an Operation Program Grant that funded the dollar cost of USA in-service training for NDDB/OVOW and state federation staff and consulting services for operations research and processing plant design and operations. Similar grant funding for consultant services, training, research and development (R&D), and development of prototype equipment is important for the future success of the project. Development and introduction of new products, packaging materials and processing methods is essential to the project. The specific areas would include the following:

A. Consulting

1. Vegetable oil and protein product identification, development, and project design
2. Plant and equipment design, constructions, and start-up
3. Operations management
4. Computer process control
5. Co-generation of electricity
6. Value added product development from by-products - soap, lecithin, deodorizer distillate, etc.
7. Seed development advanced technology on germ plasma, tissue culture, genetic engineering, etc.
8. Crop management - water, fertilizer, soil, computer modeling, etc.
9. Integrated pest and weed management

10. Post-harvest technology

11. Farm implements

12. Human resources development

B. Training

1. Computer process control

2. Operations management

3. Project management

4. Post-harvest technology

5. Marketing management

6. Operations research

7. Price and production forecasting

8. Farm implements

9. Human resource development

10. Export trade management

11. Management of cooperatives

C. Research & Development

1. Aqueous extraction.

2. Vegetable oil and protein products

a. Margarine

b. Peanut butter

- c. Defatted peanuts
- d. Textured protein
- e. Dal analogs and meat extender
- f. Soy milk products
- g. Mycotoxin control
- h. Hydrogenated vegetable oil products

3. Package development

D. Prototype Equipment

- 1. Oil meters
- 2. Moisture analyzers
- 3. Mobil vending systems
- 4. Electronic sensing devices for plant operations
- 5. Farm implements

APPENDIX II

GOVERNMENT CONSTRAINT

The Project has encountered several constraints which, while not affecting viability, have slowed the pace of achievement. In most instances these relate to actions required of the state/central government departments and agencies. Among these are:

1) State Governments have been slow in transferring land or existing farms for Area Agronomic Centres and District Farms, despite their obligation to do so. Gujarat and Andhra Pradesh are notable in this regard. As the Federation-managed farms observed are superior operations, early resolution of this problem is recommended;

2) In some instances, provision of land and water and power connections for processing plants has been delayed, despite commitments to ensure that these are completed on time. This may delay commissioning and full operation of new and refurbished plants at cost to the federations. It is important that state government agencies meet these commitments.

3) There have been frequent transfers of the federation managing director, affecting the continuity of leadership and management. It is recommended that each federation appoint qualified general manager, who can be trained to assume the managing director's responsibilities and ensure continuity. While the initial appointment of managing directors from the Indian Administrative Services has ensured excellent management and good relations with State Governments, as the federations mature it is essential that permanent professional managers, accountable to the farmers through their elected boards, assume responsibility for federation management.

4) Although the cooperatives procure directly from the members, they are not exempt from purchase taxes and market cess. Correction of this anomaly is recommended. More generally, taxation of the federation at this stage of development ignores their contribution to development and retards capital formation with no real benefit to the Government

exchequer. It may be appropriate to consider tax exemption and/or credits for developmental expenditures incurred by the federations.

5) To date, the federations have been subject to the selective credit controls. This has posed a problem in raising procurement working capital. Apparently the Reserve Bank and NABARD are considering reduction of margin requirements and interest rates for the federations. This is appropriate and should be done as soon as possible.

6) The key to the success of the project is the commitment and competence of the federation staff at every level. Some state federations are required to follow Government recruitment and selection procedures or to absorb government staff on deputation. Freedom to establish their own policies is important if the federations are to attract and retain high quality of personnel required.

7) There is evidence of considerable blending of oils in India, a practice which is now illegal. Blending of low-priced oils (soybean, palm oils, etc.) with preferred oils improves the return on processing. As the state federations do not practice illegal blending, they are placed at a competitive disadvantage. Blending of oils, usually with clear labelling, is a world-wide practice. It would not only be advantageous to the federations but would give consumers a less expensive and better product, and also, it would increase the required quantity of consumer preferred oils. It is recommended that appropriate regulations for blending be issued.

8) The existing licencing policy to establish processing plants is cumbersome and not conducive to cooperative growth. The practice of granting licence/permission by various agencies should be replaced by a "single window" approach.

Line Item/Performance Measure. -----	Current Project Status			Future Projections (Plan)			1988-89 PY10	Total
	1979 Plan	(PY 1) to 1985 Actual	(PY 6) % Plan	1985-86 PY7	1986-87 PYS	1987-88 PY9		
Co-operative Formation and Production Enhancement								
a. Membership (#'000)	149	167	112.08	72	92	90	70	491
b. Societies (#)	1892	1706	90.17	793	583	262	86	3430
c. Area (Hectares #'000)	517	514	99.42	130	133	134	135	1046
d. Production ('000 MT)	1338	1200	89.69	394	591	818	1022	4025
* e. Cost (Rs. Million)	160.84	79.45	49.40	168.62	152.08	160.74	110.88	671.77
Procurement								
a. Quantity ('000 MT)	570	481	84.39	234	376	578	632	2301
* b. Working Capital (Rs. Million)	488.80	463.46	94.82	36.54	0.00	0.00	0.00	500.00
Processing								
@ a. Capacity ('000 MT)	66	66	100.00	150	297	449	567	567
b. Capacity Utilization (%)	100.00	75.62	75.62	100.00	100.00	100.00	94.18	
* c. Capital Investment (Rs. Million)	477.17	400.66	83.97	310.39	258.56	95.82	50.92	1116.35
Marketing/Sales.								
@ a. Volume of oil and cake from Federation Processing ('000 MT)	49	44	89.80	112	231	352	420	
@ b. Value (Rs. Million)	383	323	84.34	874	1698	2561	3050	
* c. Market Research and Testing Cost (Rs. Million)	3.20	0.74	22.97	3.24	3.18	3.08	3.78	14.02
Share Capital								
* a. Cost (Rs. Million)	69.00	49.00	71.01	44.50	55.00	29.00	60.00	237.50
Project Management								
* a. Cost (Rs. Million)	80.92	67.72	83.68	50.73	42.39	31.98	33.27	226.08
Resource Functions								
a. Manpower Development								
* 1. Man Months (#)	1739	2110	121.32	4144	4952	5320	5425	21952
* 2. Cost (Rs. Million)	22.88	2.66	11.62	14.94	12.82	10.62	10.02	51.06
b. Management Training								
* 1. Candidates Trained (#)	46	50	108.70	10	10	10	10	90
* 2. Cost (Rs. Million)	0.90	0.89	98.44	0.66	0.71	0.75	0.76	3.78
c. OR and CIS								
* 1. Projects (#)	5	6	120.00	13	9	6	10	44
* 2. Cost (Rs. Million)	12.68	3.47	27.33	10.68	7.81	6.13	6.43	34.51
d. Product & Process Development								
* 1. Projects (#)	17	14	82.35	8	5	3	1	31
* 2. Cost (Rs. Million)	9.65	2.45	25.37	14.04	2.86	2.39	2.42	24.16
e. Co-operative Development								
* 1. Cost (Rs. Million)	13.31	12.30	89.03	23.58	0.00	0.00	0.00	35.37
Total of * Line Items	1339.35	1082.78	80.81	677.90	535.41	340.52	278.48	2915.09

@ Denotes only PYS figures in historical plan and actual columns.
* Denotes Line Items added in Totals.

KC

Line Item/Performance Measure. -----	Current Project Status			Current Year Results for PY 7			
	1979 (PY 1) to Plan	1985 (PY 5) Actual	% Plan	First Half Plan	First Half Actual	% Of First Half Plan	Current Year Plan
Co-operative Formation and Production Enhancement							
a. Membership (#'000)	149	167	112.08				
b. Societies (#)	1892	1706	90.17				
c. Area (Hectares #'000)	517	514	99.42				
d. Production ('000 MT)	1338	1200	89.69				
* e. Cost (Rs. Million)	160.84	79.45	49.40				
Procurement							
a. Quantity ('000 MT)	570	481	84.39				
* b. Working Capital (Rs. Million)	488.80	463.46	94.82				
Processing							
@ a. Capacity ('000 MT)	66	66	100.00				
b. Capacity Utilization (%)	100.00	75.62	75.62				
* c. Capital Investment (Rs. Million)	477.17	400.66	83.97				
Marketing/Sales.							
@ a. Volume of oil and cake from Federation Processing ('000 MT)	49	44	89.80				
@ b. Value (Rs. Million)	383	323	84.34				
* c. Market Research and Testing Cost (Rs. Million)	3.20	0.74	22.97				
Share Capital							
* a. Cost (Rs. Million)	69.00	49.00	71.01				
Project Management							
* a. Cost (Rs. Million)	80.92	67.72	83.68				
Resource Functions							
a. Manpower Development							
* 1. Man Months (#)	1739	2110	121.32				
* 2. Cost (Rs. Million)	22.88	2.66	11.62				
b. Management Training							
* 1. Candidates Trained (#)	46	50	108.70				
* 2. Cost (Rs. Million)	0.90	0.99	98.44				
c. OR and CIS							
* 1. Projects (#)	5	5	120.00				
* 2. Cost (Rs. Million)	12.68	3.47	27.33				
d. Product & Process Development							
* 1. Projects (#)	17	14	82.35				
* 2. Cost (Rs. Million)	9.65	2.45	25.37				
e. Co-operative Development							
* 1. Cost (Rs. Million)	13.31	12.30	39.03				
Total of * Line Items	1339.95	1092.79	30.81				

@ Denotes only PY6 figures in historical plan and actual columns.

* Denotes Line Items added in Totals.

Table 2 a : Statement of Oil Shipments Schedule (in MT)

	FY1 to FY6	FY7	FY8	FY9	FY10	Total
Oil Receipts	126,665	42,000	47,000	29,000	22,908	267,573
Sales	114,199	55,520	46,321	29,353	25,710	267,103
Losses	470	-	-	-	-	470
Stock (Carried forward)	11,996	476	1,155	802	-	-

Table 2 b : Statement of Account Fund Flow (in Rs. Million)

	FY1 to FY6	FY7	FY8	FY9	FY10	Total
Sale of Oil (@ 11,000 Rs.MT)	1091.63	588.72	509.53	322.88	260.81	2773.57
Related proceeds	50.06	25.90	22.42	14.21	11.48	124.07
Long Term Loan Repayments	2.12	2.25	3.46	3.44	6.13	17.45
Project Investment (Per table 1)	1082.78	677.90	535.41	340.52	278.48	2915.09
Balance (Carried forward)	61.03	-	-	0.01	-	-

Table 3 : Working Capital Requirements

	1985-86	1986-87	1987-88	1988-89
	(Rs. in Millions)			
Working Capital requirement for plants	612.50	996.30	1554.50	1716.70
Working capital for inputs	98.70	164.46	241.00	310.80
Total working capital req.	711.20	1160.76	1795.50	2027.50
Core component (at 35% of working capital)	248.92	406.27	628.43	709.63
Flucutating component	462.28	754.49	1167.07	1317.87

Federations contributions towards core component out of their own resources. (Share capital, Members' deposit, procurement deposit and dealers deposit)	85.40	137.40	191.90	215.70

<u>NDDB financing</u>				
a) NDDB contribution towards core component.	163.52	105.35 (268.87)	167.66 (436.53)	57.4 (493.93)
b) NDDB's contribution towards fluctuating components	336.48	231.13	63.47	6.07
Total NDDB contribution	500.00	500.00	500.00	500.00

Borrowings from the Commercial Banks.	125.80	523.36	1103.60	1311.80

Table 4

Expansion of the OGCP Year-wise Investment

(Rs. in million)

Components	PY8	PY9	PY10	PY11	PY12	PY13	Total
<u>Processing Facilities</u>							
a. Tamil Nadu	-	3.64	27.90	5.60	5.60	-	42.74
b. Uttar Pradesh	-	34.50	57.50	11.50	11.50	-	115.00
Sub Total	-	38.14	85.40	17.10	17.10	-	157.74
OR & CIS Studies	-	0.50	1.00	0.50	-	-	2.00
Market Research	-	0.10	-	-	-	-	0.10
Prodn.Enhancement	6.845	18.440	31.784	28.745	18.408	9.578	113.80
Manpower Devpt.	-	0.20	0.30	0.50	0.50	-	1.50
Proj.Mgmt & Impl.	0.49	3.61	7.42	3.11	2.04	0.53	17.20
Share Capital	-	5.00	10.00	10.00	0.50	-	25.50
Total	7.335	65.99	135.904	59.955	38.548	10.108	317.84
Oil requirement(MTs)	639	5746	11834	5221	3357	880	27577

October 8, 1985

TO: USAID
ATTN: Owen Cylke
FROM: N. J. Smallwood
SUBJECT: OGCP Assessment

The purpose of this memo is to provide some additional perspective on, clarification of, and detail for the OGCP assessment conducted by Smallwood and Hankins.

From the 4:00 P.M. meeting on October 1, 1985, it was apparent from the USAID participants reaction that a much more detailed assessment with a considerable amount of independent analysis was expected in the assessment report. Unfortunately, neither the pre-assessment briefings conveyed that point, nor did the assessment itinerary accommodate such an approach. In the pre-assessment briefings, the most consistent point made was simplicity and brevity of presentation. The report format and content was formulated to respond to that request. Furthermore, the assessment itinerary, while effective in gaining first-hand exposure to the people, facility, and product dimensions of the project, did not lend itself to detailed, independent analysis. Furthermore, the assessment itinerary was not consistent with the information conveyed to Smallwood and Hankins by Checchi & Company. While the inconsistencies of and reservations about the itinerary were pointed out by Smallwood and Hankins in Delhi on Friday, September 6, 1985, the "die was obviously cast" in regard to scheduling and transportation arrangements.

According to Checchi & Company, the schedule was to consist of a normal eight-hour work day and a six-day work week. Such a schedule would have accommodated both time for end-of-day and end-of-week reflection on and analysis of each day's and week's activities respectively. The actual schedule was a 12 to 16-hour work day and no days off until after the return to Delhi on October 1, 1985. An abundance of data was provided by NDDB/OVOW; however, there was no time to assimilate it until the team's return to Anand on September 25. The concluding time in Anand was spent in executive session with members of the NDDB/OVOW staff to understand and analyze their data and in writing the report. Finally, from the post-meeting (October 1, 1985) perspective, either of the following options should have been utilized: (1) the time allocated for the assessment should have been longer - as much time should have been allocated for analysis as was spent in field inspection, or (2) the financial analyst member of the team should have spent the entire time at Anand working on independent analysis:

With respect to what further action is called for, the following observations are offered:

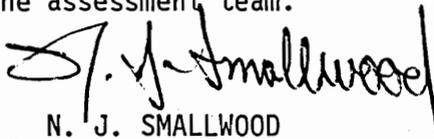
1. In the executive sessions with the NDDB staff to understand and probe the data, it was found that their analysis was very thorough, accurate and reasonable. From the exposure, a high level of confidence developed with regard to NDDB/OVOW's analysis, planning and projections.
2. From the perspective of the assessment team's technical and business knowledge and experience in the oilseeds sector, the project as conceived and as being executed is sound.

Subsequent to completing and presenting the report, the conclusions of past assessment teams have been reviewed and have been found to reflect remarkably consistent agreement on the considerable merits of the OGCP as conceived and managed by NDDB/OVOW (see Attachment A).

3. The continuing detracting aspect of the project from a management point of view is USAID's inability to understand, track and deal objectively with the project. From the insights gained to date, especially from the October 1 meeting, it is quite clear that for USAID to carry out an effective role in the project, a full-time, continuity staff member must be selected who possesses exceptional objectivity, strong character, and the ability to work in a positive synergistic manner with all parties involved - USAID, CLUSA and NDDB/OVOW. The project is too important, large, and complex to be handled by a short-term or part-time person.
4. Two major surprises were confronted by the assessment team which were disappointing in the context that the information about the matters was readily available and should have been known and have been a part of the pre-assessment briefing. First, the total vegetable oil requirement to complete the project as it currently stands is 267,573 MT or 107,573 MT over the original commitment. The additional requirement is due to issue price differences (variances), inflation and working capital (see Attachment B and the

assessment report for details). Second, a proposal for expanding the OGCP (part II) was introduced to the assessment team while writing the final report. The initial response was to point out that it was not in the scope of the assessment team's assignment and to recommend that it be submitted by NDDB/OVOW through CLUSA as a separate matter. The response of NDDB/OVOW was to refer to both the original project description and to the May 15, 1985 meeting minutes of NDDB/OVOW, CLUSA and USAID in which the project expansion was foreseen and agreed to in principal respectively. Consequently, it appeared appropriate to the team to include the expansion in the report and to comment about it using the same criteria as for the original project.

5. Subsequent to the October 1 meeting, additional analysis has been made and supporting detail prepared to better document the conclusions and recommendations in the assessment report. Attached are the responses to and references for the list of the specific questions which were presented by USAID to the assessment team.


N. J. SMALLWOOD

ASSESSMENT ISSUES/QUESTIONSI. Processing Capacity

- A. Validity of Basic Project Strategy: In view of the current economic and political environment in the oilseeds sector, a vertically integrated project from agricultural production to finished product sales is the valid course to follow. If the project were limited to production enhancement coupled with reliance on the existing procurement, processing, and marketing systems, the farmers would continue to be in the clutches of the oil traders with respect to price. To break the hold of the oilseed traders/speculators, the project scope would have to include on-farm or in-village storage facilities and procurement. Such an approach would require a much larger share of the oilseed production in order to impact prices. Furthermore, to be politically feasible, the program probably would have to be extended to all oilseed farmers and the resulting cost of the project would be significantly more than the vertically integrated project limited to 10 to 15 percent of the total market. Furthermore, limiting the project scope to production or production, storage and procurement would not provide any advantage to the consumer with respect to oil quality, package variety or product cost. The project as formulated

is market driven and has an array of developmental features - agricultural production, processing, product development, product quality and delivery to the consumer. The experience of the U.S. oilseed farmer tends to substantiate the assertion. After production enhancement programs helped increase productivity, the U.S. farmers were driven to providing cooperative and on-farm storage to counteract market forces which tended to drive down prices at the time of harvest.

Refer to the assessment report discussion Section No. 1 for additional information.

- B. Appropriateness of Capacity Planned Under the Project: To have a stabilizing, trend-setting impact on the oilseeds market, a market share in the 10 to 15 percent range is desirable. In looking at the market potential for vegetable oil and protein products which have high quality, wide variety and multi-package options, it is both overwhelming in size and waiting to be tapped. Consequently, the ability to utilize the processing capacity being developed should be certain if the marketing effort is properly planned and executed, and it appears to be on target.

Capacity utilization has been mis-stated and misunderstood to date. When a new plant is constructed, or an existing plant is massively reconstructed, design capacity is not immediately achieved at the completion of construct-

ion. Available capacity follows a "learning curve" which starts from zero and progresses to 100 percent of design capacity over a two to four year period, depending upon the complexity of the plant and the particular circumstances. Consequently, when the utilization of available OGCP capacity is expressed according to normal learning curve expectations, the utilization is quite favorable (see Table 1 in the assessment report).

In regard to oilseed availability in the plant command areas over the long term, except in years of severe drought, the agricultural production should keep pace with processing capacity and be under pressure from market demand which is desirable from a business standpoint. While production enhancement had a troubled beginning with respect to meeting targets, significant progress is now being made, and momentum is building. See Attachment B, and refer to discussion Sections 6, 7 and 8 in the assessment report for further details.

The end-of-project and long-term financial viability of the processing plants should be outstanding because of the following reasons:

1. Efficient design, construction and operation - significantly ahead of most competition.
2. Operating capacity of each production unit - better productivity, higher yields and lower operating cost than most of the competitors.

3. Fifty percent break-even capacity utilization (average for the OGCP plants).

From a business point of view, deferring the presently planned processing units is not consistent with the total project objectives. Looking at the total project as a system, each sub-system must be kept in balance; thus, to make a major change in any one sub-system would impact all the other sub-systems.

For additional information on processing, see Attachment C and refer to discussion Sections 12, 13, 14, 15 and 16 in the assessment report.

C. Assessment of Existing Non-Project Public and Private

Oilseed - Processing and Storage Capacity: The Tata report presented was timely to provide an overview of oilseed processing. In addition, two small operations were visited, and private conversations were held with chief executives of two major oilseed processors.

In the public sector, Hindustan Vegetable Oil Company is the GOI's operation which deals primarily in the production and marketing of Vanaspati (hydrogenated oil) and in marketing imported oil. There are several cooperative operations under the control of the individual states. Due to ineffective management and size, the state operations are not a significant factor.

The private sector currently consists of four major companies with a combined market share of about ten

percent. Numerous small companies comprise the remainder of the market.

With respect to competition, timing appears favorable to offer high quality and multi-packed vegetable oil products in the market.

For the long term, the impact of the OGCP should be favorable for the public and private sectors. The production enhancement is already positive. The owner of a private company in Indore commented that the OGCP's emphasis on the yellow variety of soybeans instead of black soybeans was helpful. Furthermore, the performance level which the OGCP is capable of achieving should establish new industry standards which will benefit everyone.

II. Procurement

A. Appropriateness of Increasing the Investment in Production

Enhancement: Spending has lagged the planned rate in production enhancement (currently at 49.4 percent of plan). The reasons for the delay and the sudden jump in spending are presented in Attachment B. There is not a good argument for increasing investment in production enhancement beyond the current level. The main emphasis should be on keeping the sub-systems in balance.

B. Potential for Processing Units to Attract Sufficient Raw

Material: As covered in I.B., the prospects are very favorable for acquiring sufficient raw material to meet the

market and processing demands for both the short and long term except for cases of severe drought.

- C. State Federations' Potential to Achieve Self-Sufficiency in Procurement Financing Including Working Capital Beyond Resources Provided by USAID: State federations are currently obtaining loans from commercial banks for oilseed procurement; however, the margin requirement ranges from 40 to 60 percent, and the interest rate is about 14.5 percent. As favorable credit history is developed by each federation, there is the potential for receiving both a reduction in the margin requirement and in the interest rate. NDDB/OVOW is working on behalf of the federations to receive GOI support via the Reserve Bank of India.

For the OGCP to be viable, a foundation (core) amount of working capital is required to underwrite the margin portion of procurement, in-process inventory, finished product inventory, consumables and receivables. The core component of working capital is as valid as investment in production enhancement, processing facilities or other sub-systems. Authorization has been given throughout the project to cover the core working capital component from the sinking fund. As the sinking fund is depleted for the specific allocations, the core working capital component is becoming an acute issue. The core working component should have been recognized as an essential factor in the original

project, and provisions should have been made for permanent funding.

- D. Recommendation on Working Capital: To assure project viability, USAID should commit to funding the core component of working capital at a level of Rs. 500 million. See Table 3 in the assessment report and Attachment D for a more detailed presentation. The financial outlay committed by both NDDB/OVOW and the initial state federations is such that additional loans to cover the core working capital component could be difficult or impossible to obtain (see Attachment E for allocation of funding between NDDB/OVOW and the individual state federations).

III. Pricing Policy

- A. Market Prices for Oilseeds and Edible Oil Products: The dynamics of the Indian oilseed and edible oil products markets are primarily determined by GOI policy with respect to import level and price control on edible oil. In regard to price control, imported oil by the GOI is sold to both the public and private sectors at a price below the domestic oil market. Occasionally, the GOI places controls on the domestic market if oil prices reach the point of being prohibitive to the lower economic level of the population. With the exceptions noted, the domestic oilseed and vegetable oil market follows the normal supply-demand (free market) influences. The domestic oilseeds market, due to trader/speculator influences,

follows a seasonal trend which is unfavorable to the producer (farmer).

The long-term trend of oilseed and vegetable oil prices probably will be determined primarily by the success of the NDDB/OVOW to impact GOI import policy and sustain the viability of the OGCP to stabilize the oilseeds market. Recent cabinet changes in the GOI appear to favor the NDDB/OVOW's ability to obtain an import policy which better protects the domestic market.

B. Pricing Policy Impact on Processing Capacity

Utilization and Marketing Finished Product: While potentially dispositive to profit potential, GOI policy is not likely to have a significant impact on OGCP process capacity utilization. On the premise that the OGCP's processing plants will be highly competitive, the edible oil products produced will be of consistently high quality, and the marketing effort will be effective, the OGCP should be favorably positioned to function in the domestic market in most circumstances. It is not likely that the GOI will take such drastic action as to destroy the domestic industry.

IV. Pipeline (Funding) Status

A. Resource Requirements and Phasing: The resource requirements by project year are presented in the

assessment report in Tables 1, 2 a and 2 b. To complete the OGCP as currently defined and provide the working capital core component of Rs. 500 million, an additional 107,573 MT of vegetable oil is required over the original commitment of 160,000 MT. A detailed accounting for 107,573 MT is given in Attachment F.

For the current project year (PY 7) pipeline resources will be depleted by March 15, 1986. The PY 7 OGCP plan requires a total of 42,000 MT of additional vegetable oil for funding.

If the OGCP expansion proposal is approved, an additional 27,677 MT of vegetable oil will be required. Refer to the assessment report discussion Section no. 28 for details on the expansion scope and rationale.

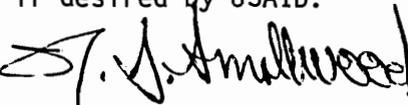
- B. Rate of Expenditure: The rate of spending has lagged significantly behind plan for some line items in the past. The most obvious case is production enhancement which is covered in II. A. and Attachment B.

While actual performance has lagged in some cases, it is not surprising for the size and complexity of the project. Furthermore, it is to the credit of NDDB/OVOW that they progressed at the rate which they could manage effectively and spend prudently. For the future, the organization has reached the size and maturity to progress at the planned rate. The major barriers to progress now appear to be individual state government and GOI policy and

commitment action (see Appendix II in the assessment report).

V. Longer-Term Senior Advisor and Staff Member:

- A. Recommendation: Based on the interactions with NDDB/OVOW, CLUSA and USAID from September 6 to October 8, 1985, it is the recommendation of the assessment team that a continuity person be designated as part of the USAID mission staff to administer USAID's role in the project. The qualifications of the individual are briefly outlined in the cover memo. To orient the continuity staff member, resolve the many detailed questions, and make the in-depth analyses which apparently will be required to satisfy USAID's needs, a senior advisor should be retained for six to twelve months. Preferably, the senior advisor should be a recently retired professional who is in the position to allocate the time and possess the skill to get the job done.
- B. Sources: Possible candidates will be identified and contacted by N. J. Smallwood if desired by USAID.


N. J. SMALLWOOD

ATTACHMENT APRIOR EVALUATIONS OF OGCP

1. CLUSA/USAID Project Assessment Team's Report on the Oilseed Grower's Cooperative Project. Dated April 17, 1981.

The field work and writing of the evaluation took place between March 4 and April 17, 1981.

The team included:

- 1) John Hatch, Team Leader (independent consultant)
- 2) Carl Petersen, Processing Specialist (CLUSA employee)
- 3) Charles Johnson, Economist (AID/Washington)
- 4) Fletcher Riggs, Agricultural Economist (USAID/Delhi)
- 5) R. N. Trikha, Crops Specialist (USAID/Delhi)
- 6) James Pentist, Oilseeds Trading Specialist (independent consultant)

Selected Quotations:

In general, all members of the Assessment Team came away with a favorable and supportive opinion of the OGCP. It is viewed as basically well-conceived, feasible, and urgently needed. The team was particularly impressed by the technical expertise and high motivation of NDDB/OVOW personnel. Considering this very high quality of human resources available to the OGCP, it is possible to assert that it is probably easier for the project to succeed than to fail.

The Oilseed Growers Cooperative Project is an exciting undertaking with excellent prospect for success. Its strengths are inherent in a number of areas: in the project's design, in its implementing agencies, in its potential impact at the farm level, and in its openness to learning and new development opportunities for the future. In sum, large and costly as it is, the project represents an excellent use of U.S. Taxpayers' money for development assistance in general and for the Food for Peace Program in particular.

.... the Team urges USAID to make very explicit its needs for project monitoring information, to discipline itself to meet those needs through CLUSA, and that CLUSA answer USAID requests for information in a precise and constructive manner....

2. Report on the Evaluation of the Oilseed Growers' Cooperative Project by the Joint NDDB/CLUSA/GOI/USAID Project Evaluation Team dated June, 1983.

The field work and writing of the report took place between May 12, 1983 and June 20, 1983.

Members of the Evaluation Team included:

- 1) Dr. Russell Olson, Team Leader (independent consultant)
- 2) Mr. Owright Finfrock, Agronomist (independent consultant)
- 3) Mr. Travis Mitchell, Processing (independent consultant)
- 4) Mr. Maurice Landes, Economist (U.S. Department of Agriculture, Economic Research Service)
- 5) Mr. John Chardavoyne, Financial management (Vice Chancellor and Comptroller, City University of New York)
- 6) Shri S. Manji, Agronomist (Director, Soybeans, Ministry of Agriculture, Government of India)
- 7) Mr. Charles Hendrix, Cooperatives (TUA)

Selected Quotations:

The OGCP is an imaginative and ambitious undertaking. It is basically well designed and, in general, is being well implemented. The Oilseeds and Vegetable Oil Wing of NDDB is staffed with talented and highly motivated personnel and the project gets strong support from the technical and service departments of NDDB.

.... the performance of the project has been impressive considering the problems that have affected it.

ATTACHMENT BFACTORS CONTRIBUTING TO INCREASED EXPENDITURES BUDGETED IN PY-7 FOR THE PRODUCTION ENHANCEMENT LINE ITEM1. District Farms

At the end of PY-6 (6-30-85), the project had acquired three district farms - two in Gujarat and one in Madhya Pradesh. Capital expenditures on these three facilities were limited to Rs. 1.55 million through PY-6 due to the late acquisition of these facilities from the state governments and to the uncertainty of whether the Government of Gujarat would insist on the return of one of the farms in Gujarat.

In PY-7, two additional district farms are targeted to be acquired, and little problem is anticipated in obtaining the necessary land from the concerned state governments. Consequently, substantial capital investments are anticipated for PY-7 for both the three existing farms and for the two additional farms to be acquired in PY-7. The PY-7 budgeted capital investment for these farms is Rs. 9.709 million. This represents 58% of the total amount budgeted for capital investments in the targeted seven district farms. As the PY-7 budget relates to investments in five out of the targeted seven district farms, the magnitude of the PY-7 budget for this sub-item would not appear to be unreasonable.

The new district farms would also begin to incur recurring costs (wages, agricultural inputs, repairs and maintenance, vehicle and other operational costs, etc.) Therefore, provision in the budget must be made for increased recurring costs - both for the new farms and for these recurring costs on the existing farms which the project has committed to finance, but which have not yet been claimed by the federations (see "CBNC" section).

2. Area Agronomic Centers

Two Area Agronomic Centers (AACs) were acquired during PY-6. As they were just recently acquired, capital investment for those two AACs was limited to RS. 1.199 million through PY-6. In PY-7, substantial capital investments are planned for the two AACs acquired during PY-6, and one additional AAC which has already been acquired in Karnataka. Planned capital investment for AACs in PY-7 is Rs. 12.299 million. This represents 59% of the total amount budgeted for capital investment in the targeted four AACs. As the PY-7 budget relates to investments for three out of the targeted four AACs, the amount budgeted for PY-7 would not appear to be unreasonable.

3. Training Centers

Each state federation has a provision in its project plan for construction and operation of training centers for the project personnel and participants in the production enhancement activities. Work has been initiated on training centers in Gujarat and Madhya Pradesh with a capital cost of Rs. 5.832 million incurred through PY-6. The PY-7 budget allocation of Rs. 10.309 million includes the increased capital investment for the additional training centers scheduled to be initiated by the other state federations. This PY-7 budget allocation represents 49% of the total amount budgeted for capital investment in training centers and is consistent with the anticipated schedule of completion of these facilities.

4. Society and Seed Storage Facilities

No society seed-storage facilities had been constructed by the end of PY-6. It is now anticipated that storage capacity totaling 49,450 MT can be initiated by the end of PY-7. This capacity represents 58% of the total storage capacity planned. The PY-7 budget allocation of Rs. 21.958 million for this item represents only 17% of the total amount budgeted for these storage facilities and would, therefore, not appear to be unreasonable.

5. Extension Activities

The main expenditures under this item consist of a subsidy of Rs. 500 per demonstration with two demonstrations per society per year and Rs. 2500 per society per year for holding incentive and instructional activities such as yield completions, farmer's meals, etc. For the 2499 societies targeted by the end of PY-7, these expenditures would amount to Rs. 8.747 million. In addition, mobile extension units costing approximately Rs. 1.65 million each and adjustments for the previously incurred but not yet claimed expenses (see "CBNC" section) for this item are included in the PY-7 budget allocation of Rs. 14.133 million.

6. Research

As the Government of Gujarat has failed to provide land for an Area Agronomic Center, the Gujarat Federation will enter into contracts with agricultural universities and other research institutions for adaptive research and seed multiplication beginning in PY-7. An amount of Rs. 13.075 million has been budgeted for this purpose. The PY-7 allocation of Rs. 5.305 million represents approximately 41% of the total budgeted amount.

7. Committed but not Claimed (CBNC)

The project has committed to reimburse the state federations for a number of expenses which have been incurred but not yet claimed. These expenses include a managerial subsidy of Rs. 3,000 per society, an equipment subsidy of Rs. 6,250 per society, and recurring expenses

of the mobile teams, district farms, state and district federation offices, and extension activities. At the end of PY-6, these CBNC expenses totaled Rs. 88.73 million. In the budget, these expenses have been apportioned to subsequent years, including a substantial portion to PY-7. This, along with the factors listed above, contributes to the appearance that the PY-7 budget allocations are high compared to the PY-1 through 6 expenditures indicated.

As an illustration of the CBNC expenses, the managerial subsidy committed by the end of PY-6 amounted to approximately Rs. 9.327 million, but only Rs. 3.942 million had been claimed and reimbursed. Similarly, the equipment subsidy committed by the end of PY-6 was approximately Rs. 10.663 million, but only Rs. 4.360 million had been claimed and reimbursed. Substantial commitments for expenses not yet claimed also exist for the other items indicated above. This category of expenses is expected to largely disappear over the next 18-24 months as the federations finalize and submit their claims for reimbursement.

PRODUCTION ENHANCEMENTOUTFLOW (MILLION Rs)

<u>PERIOD ENDING</u>	<u>NEW</u>	<u>CUM</u>	<u>% INCREASE</u>	<u>CUM.</u>
9/30/80	1.71	1.71	-	
3/31/81	1.72	3.43	101% (6 Months)	
9/30/81	15.14	18.57	441%	"
3/31/82	0.02	18.59	0.1%	"
9/30/82	0.14	18.73	0.8%	"
3/31/83	0.40	19.13	2.1%	"
9/30/83	8.07	27.20	42%	"
3/31/84	3.51	30.71	13%	"
9/30/84	7.93	38.64	26%	"
3/31/85	27.02	65.66	70%	"
6/30/85	13.79	79.45	21% (3 Months)	
PY-6 CBNC		168.18		
PY-7		248.07	47% (12 Months)	

NOTE: Same comments about Rate of Expenditure used to be made about the Processing Line Item. These comments were proven to be unfounded.

Processing Outflow as of 3-31-84 = Rs. 143.72 Million
as of 6-30-85 = Rs. 400.66 Million

PRODUCTION ENHANCEMENT

ITEM	<u>CUMULATIVE UNITS</u>				<u>CUM. EXPENDITURE (MILLION RS)</u>			
	<u>PY-6</u>	<u>PY-7</u>	<u>(PY-10) TOTAL</u>	<u>% TOTAL PY-7 AS</u>	<u>PY-6</u>	<u>PY-7</u>	<u>(PY-10) TOTAL</u>	<u>% TOTAL PY-7 AS</u>
<u>CAPITAL</u>								
DIST FARMS	2+1 ^(a)	5	7	71%	1.455	11.164	16.738	67%
AACs	2 ^(b)	3	4	75%	1.199	13.498	20.796	65%
TCs	-	-	-	-	5.832	16.141	21.078	77%
SOC/SEED STOR. (000 MT)	0	49.45	84.85	58%	0.069	2.518	10.237	25%
<u>DEVELOP MT</u>								
EXTEN: SOCIETIES	1706	2499	3430	73%	8.480	22.613	68.89	33%
AG. IMPL	-	-	-	-	0.210	11.000	20.000	55%
RSCH CONT.	0 ^(c)	-	-	-	0	5.305	13.075	41%
TOTAL LINE ITEM					79.451 ^(d)	248.069	671.769	37%

NOTES:

(a) Investment initiated for only 2 Farms

(b) Both AACs acquired in PY-6

(c) To be initiated in PY-7

(d) Excludes Rs. 88.733 million in committed but not yet claimed expenses till end PY-6 which has been apportioned to subsequent years

ATTACHMENT C
OGCP Processing Plant Status

STATE	PLANT LOCATION	CRUSH	CAPACITIES SOLV-EXTRCT	IN MT. REFIN.	TOTAL COST (Rs. Million)	CONTRACT DATE	STATUS Jun-85	EST. COMPLETION
NEW PLANTS								
Gujarat	Junagadh (G-nut)	400	200	100	110.00	Jun-82	98%	Jun-85
Madhya Pradesh	Ujjain (Soybean)	400	400	75	193.70	Mar-83	66%	Feb-86
Madhya Pradesh	Morena (R/M)	100	0	0	22.50	Oct-85	0%	Jun-87
Andhra Pradesh	Mehboobnagar (G-nut)	200	100	100	78.40	Apr-85	21%	Feb-88
Andhra Pradesh	Nalgonda (G-nut)	200	100	50	70.76	Apr-85	10%	Feb-88
Karnataka	Hospet (G-nut+Sflwr)	300	150	50	104.57	Oct-85	0%	Jun-88
Sub-Total		1600	950	375	579.93			
RENOVATED								
Tamil Nadu	TV Malai)(G-nut)			10				
Tamil Nadu	Virudhachalam)(Sflwr)	300	100	25	76.55	Sep-85	0%	Jun-87
Gujarat	BVP	300	125	48	71.00		85%	Dec-85
Gujarat	Jamnagar	250	200	30	45.00		95%	Sep-85
Gujarat	Dhasa	100	0	0	2.50		95%	Sep-85
Sub-Total		950	425	113	195.05			
PROJECT-FINANCED								
Gujarat	Rajkot (CSeed)	100	100	0	14.00		98%	Jun-85
Gujarat	Idar (CSeed)	120	85	0	42.50	Feb-83	75%	Dec-85
Gujarat	Anand (Soybean)	100		0	2.05		100%	Complete
Gujarat	Anand (CSeed)	40	85	0	7.20		100%	Complete
Gujarat	Anand (G-nut)	100		0	2.32		100%	Complete
Sub-Total		460	270	0	68.07			
TOTAL		3010	1645	488	843.05			

*Cumulative through 6/30/85.

5

Processing Plant Expenditures

PLANT LOCATION	EXPEND.			BALANCE		TOTAL
	PY-6*	PY-7	PY-8	PY-9	PY-10	
Junagadh (G-nut)	92.45	17.55	0.00	0.00	0.00	110.00
Ujjain (Soybean)	87.38	83.32	23.00	0.00	0.00	193.70
Morena (R/M)	0.00	15.00	7.50	0.00	0.00	22.50
Mehboobnagar (G-nut)	16.60	40.00	16.80	5.00	0.00	78.40
Nalgonda (G-nut)	0.00	21.23	42.46	7.07	0.00	70.76
Hospet (G-nut+Sflwr)	0.00	31.40	62.80	10.37	0.00	104.57
	196.43	208.50	152.56	22.44	0.00	579.93
TU Malai)(G-nut)						
Uirudhachalam)(Sflwr)	30.40	23.00	23.15	0.00	0.00	76.55
BUP	59.36	11.64	0.00	0.00	0.00	71.00
Jamnagar	41.90	3.10	0.00	0.00	0.00	45.00
Dhasa	4.45	-1.95	0.00	0.00	0.00	2.50
	136.11	35.79	23.15	0.00	0.00	195.05
Rajkot (CSeed)	14.00	0.00	0.00	0.00	0.00	14.00
Idar (Cseed)	37.62	4.88	0.00	0.00	0.00	42.50
Anand (Soybean)	2.05	0.00	0.00	0.00	0.00	2.05
Anand (CSeed)	7.20	0.00	0.00	0.00	0.00	7.20
Anand (G-nut)	2.32	0.00	0.00	0.00	0.00	2.32
	63.19	4.88	0.00	0.00	0.00	68.07
	395.73	249.17	175.71	22.44	0.00	843.05
Item	Py-6	PY-7	PY-8	PY-9	PY-10	Total
Storage	0.00	14.00	20.00	3.58	2.62	40.20
Packaging	3.17	38.18	17.45	18.80	17.30	94.90
Transport	0.80	1.00	0.90	10.00	11.50	24.20
Elec. Gen.	0.00	2.00	8.00	12.00	3.00	25.00
Detoxificat	0.00	1.00	6.50	2.00	1.50	11.00
Peanut Butt	0.00	0.50	2.50	2.00	0.00	5.00
Margarine	0.00	0.50	17.50	15.00	7.00	40.00
Other Produ	0.00	5.00	10.00	10.00	8.00	33.00
Sub-Total	3.97	62.18	82.85	73.38	50.92	273.30
TOTAL	399.7	310.388	258.55	995.822	50.92	1116.352

* Cumulative through 6-30-85

ATTACHMENT DWorking Capital

The original NDDB Proposal to "Restructure Edible Oil and Oilseed Production and Marketing", as approved by the Government of India, states:

Provide support and procurement:

In the first year, in villages with cooperatives, a moderate support price will be offered, mainly to gain the trust of the growers. At current general price levels, it is believed that a price of Rs. 2,000 per MT would be adequate. Actual procurement, however, is not expected to be great in the first year. Thereafter, however, procurement is expected to rise quite rapidly. At least during the initial years, the actual conduct of some of the groundnut procurement operations may be entrusted to the State Cooperative Marketing Federations. Assuming present price levels, the project's objective will be to establish Rs. 2,000 per MT as its provision price at the end of purchase and to pay a 10 percent bonus at the end of the year. The Project Authority will require bank credit to support its purchase as follows:

Years	PY-1	PY-2	PY-3	PY-4	PY-5	PY-6	PY-7
a) Through coops							
1. Procurement ('000 MT)	14	73	216	436	730	1098	1546
2. Credit @ Rs. 2,000/MT (Rs. million)	28	146	432	872	1460	2196	3092
b) Oil in Open Market (Domestic & International)							
1. Quantity ('000 MT)	150	130	125	100	50		
2. Credit (Rs. mil.)	825	715	587.5	550	275		

It was assumed, incorrectly, that commercial bank finance would prove easy to access. At the same time, NDDB also assumed that the project sinking fund; i.e., funds generated above the Rs. 5,500 landed value, would be used to leverage finance. The amount anticipated in generations was Rs. 227 million, i.e. about 25% total landed value (Rs. 880 million).

The present working capital line item (Rs. 500 million) represents 17% of total required generations.

U.S. Audit Recommendations

The initial project audit recommended that all project funds, landed value and additional, be included in the project accounts. This eliminated the sinking fund.

Part of the scope of the Hatch evaluation included addressing the re-budgeting of the project consistent with the audit recommendations. In this regard, the team wrote:

As originally conceived, this line item (Procurement Support) was established to assist state federations in acquiring sufficient loan capital for oilseed procurement operations by financing their loan interest payments.....

The more serious problem, it seems to us, is not the differential cost using procurement capital, but rather the sufficient availability of capital itself - at any price - to purchase opportunely the supplies of oilseeds needed.....

In this regard, the Team feels that procurement support funds should be employed for a wider variety of support activities. Specifically, these resources could be used to provide federations with emergency margin money.

As a consequence of this recommendation, and after negotiations with the USAID Mission, a Rs. 425 million revolving fund was created to assist in financing of procurement and other working capital requirements.

Phase I Evaluation

The 1983 Phase I Evaluation addressed the issue as follows:

It is recommended that NDDB/OVOW be given more flexibility to shift funds within the capital major purpose to support procurement financing. The fact that per unit procurement costs have been higher than expected, that procurement and procurement prices are likely to be variable, and that the currently budgeted Rs. 425 million will be insufficient to support project procurement operations, suggest that this flexibility is necessary - it can be argued that more of the funds generated from the sale of donated oil should be made available for procurement because the sale of donated oil at higher than expected prices also meant that project operating capital requirements for processing domestic oilseeds were also going to be larger than expected.

It is important that the state federations begin utilizing, to the extent possible, the commercial vehicles for procurement. This needs to occur at once, but NDDB/OVOW should develop a

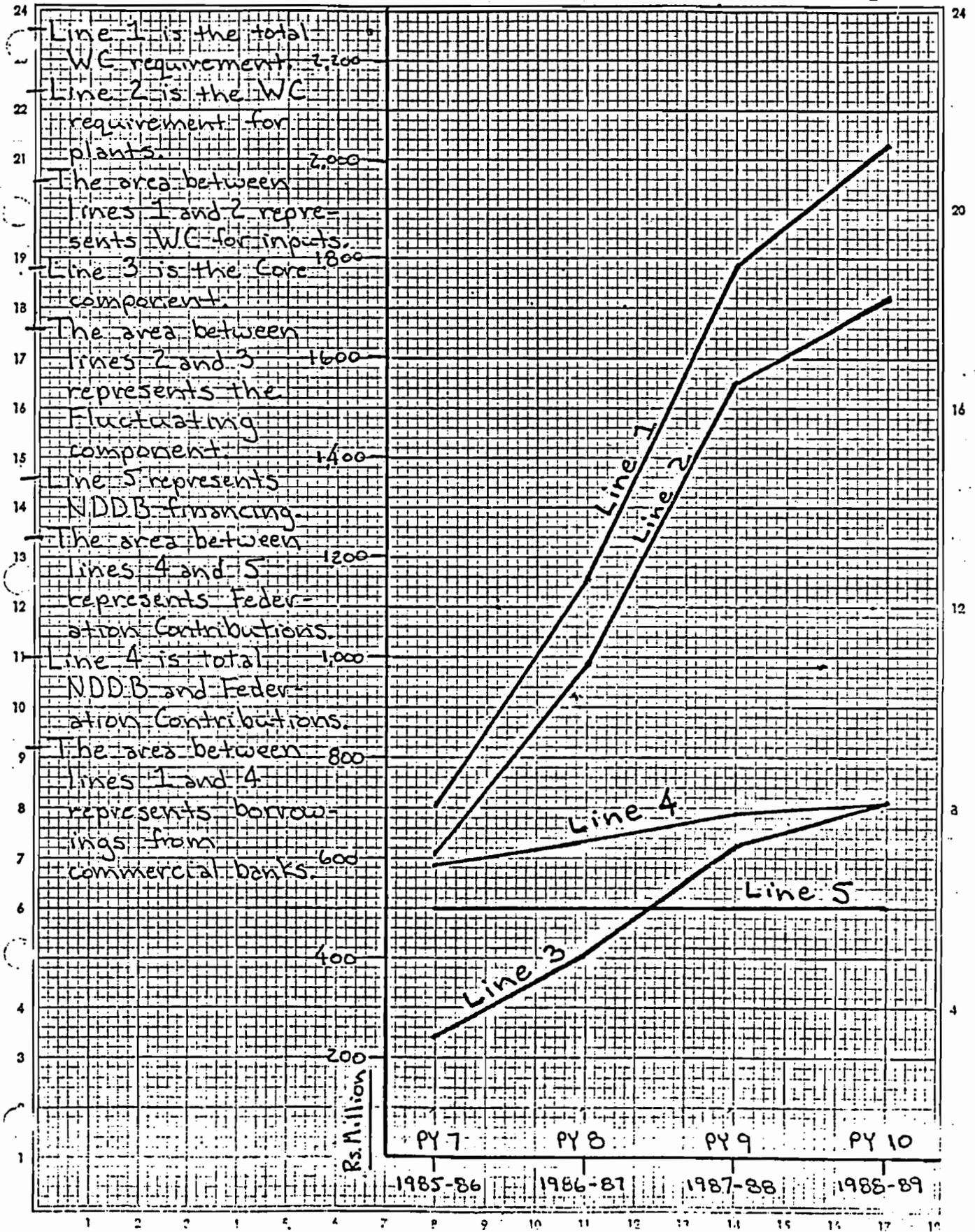
phased-in approach, whereby they would provide only a certain percentage of a federation's requirement which would be directly related to the length of time a federation has been in operation.

Current Approach

Consequent to the evaluation (as well as before) NDDB had invested considerable effort in devising a satisfactory solution to the problem of procurement finance. The strategy evolved calls for:

- a) Negotiation of a more favorable margin and interest rate for federations.
- b) Requirement that federations raise a portion of margin funds from: 1) deductions from member payments, 2) share capital, 3) packing credit, 4) dealer deposits, etc.
- c) Following standard banking practice, NDDB would convert fluctuating procurement finance into core working capital loans, with the same term and interest rates as the processing loans. The estimates prepared by NDDB staff indicate that Rs. 500 million would be required for this purpose.

In the interim, USAID has approved raising the revolving fund to Rs. 500 million, where it now stands.



ATTACHMENT ELOAN AND GRANT COMPONENTS OF MAJOR OGCP ITEMS

<u>ITEM</u>	<u>% LOAN</u>	<u>% GRANT</u>	<u>PARAMETERS</u>
Processing Facilities	70%	30%	Capital investment Excludes land, power water connections
Production Enhancement			
1. Assistance to Cooperatives			
Equipment Subsidy	0%	100%	Rs. 6250/society
Managerial Subsidy	0%	100%	Rs. 3000/society x 2 years
Society Storage	50%	50%	Rs. 50,000/society
2. Area Agronomic Center Capital			
Farm Development	0%	100%	
Motorcycle	50%	50%	Rs. 15,000/Motorcycle
Jeep plus trolley	0%	100%	Rs. 125,000 for Jeep plus Rs. 10,000/trolley
Tractors & other equipment	70%	30%	
Recurring Expenditures			
Years 1 and 2	0%	100%	
Year 3	25%	75%	
Year 4	50%	50%	
Year 5	75%	25%	
Year 6 and thereafter	100%	0%	
3. District Farms			
Capital			
Farm Development	0%	100%	
Tractor & Equipment	70%	30%	
Motorcycle	50%	50%	
Jeep with Trolley	0%	100%	
Recurring Expenditures			
Years 1 and 2	0%	100%	
Year 3	25%	75%	
Year 4	50%	50%	
Year 5	75%	25%	
Year 6 and thereafter	100%	0%	

4. Field Teams Capital

Divisional Office			
Office Building	70%	30%	Rs. 200,000 each
Furniture/Fixtures	70%	30%	Rs. 150,000 each
Jeep	0%	100%	Rs. 125,000 each
Mobile Teams			
Furniture/Fixtures	70%	30%	Rs. 25,000 each
Jeeps	0%	100%	Rs. 125,000 each
Motorcycles	50%	50%	Rs. 15,000 each
Head Office			
Jeep	0%	100%	Rs. 125,000
Recurring Expenses			
Years 1 and 2	0%	100%	
Year 3	25%	75%	
Year 4	50%	50%	
Year 5	75%	25%	
Year 6 and thereafter	100%	0%	

5. Extension Activities Capital

Van for Extension	70%	30%	Rs. 350,000/Division Office
Equipment	0%	100%	
Recurring Expenses	0%	100%	

6. Training Center Capital

Quarters and Bus	70%	30%	
Classrooms, hostels, labs, etc.	0%	100%	
Recurring Expenses	0%	100%	

7. Mobile Soil Testing Labs Capital

Chassis & Body	70%	30%	
Lab and other equipment	0%	100%	
Recurring			
Years 1 and 2	0%	100%	
Year 3	25%	75%	
Year 4	50%	50%	
Year 5	75%	25%	
Year 6 and thereafter	100%	0%	

8. Seed Processing Unit Capital

Recurring Expenses	0%	0%	Not financed by OGCP
--------------------	----	----	----------------------

CENTRAL ACTION ITEMS

1. Federation Building (AI-7)	70%	30%	Rs. 1,200,000/federation
2. Mini-Computer (AI-2) Capital	70%	30%	
Recurring			
Years 1 and 2	0%	100%	
Year 3	25%	75%	
Year 4	50%	50%	
Year 5	75%	25%	
Year 6 and thereafter	100%	0%	
3. Duplication Equipment (AI-2)	70%	30%	Rs. 200,000/federation
4. Brand name, logo, etc. (AI-3)	0%	100%	Rs. 100,000/federation
5. Project Plan Preparation	0%	100%	Rs. 100,000/federation
6. MIS Activities (AI-2)	0%	100%	For first two years
7. Sr. Manager Salaries (AI-6)	0%	100%	For first two years
8. Community seed multiplication and Plant Protection	25%	75%	

Overall project attempts to provide funding to federations on a 55:45% loan:grant ratio.

ATTACHMENT FAdditional Oil Requirements

The original project design, prepared in 1976-77, called for a total donation of 160,000 MT of oil to fund the U.S. component of the project. Four assumptions were implicit in this projection:

- 1) All estimates were in constant (1976-77) rupees
- 2) All participating states would initiate action simultaneously at the start of PY-1
- 3) The full project would require 7 years
- 4) All working capital would be financed by the project sinking fund and commercial banks

The Phase I Evaluation team noted that these assumptions were faulty. They recommended that the project be extended to 10 years and that the oil contribution be raised from 160,000 to 197,000 MT. They assumed that the additional 37,000 MT would be sold at Rs. 13,000 per MT.

Current Situation:

Present estimates are that the project will require up to 267,500 MT of oil to fully fund the project.

These estimates are based on:

- 1) Additional oil to compensate for lower than projected issue price: 18,300 MT.
- 2) The impact of inflation on the project investment: 43,700 MT.
- 3) Incorporation of core working capital in the long-term loans to federations: 45,500 MT.

ISSUE PRICE

Massive Government of India imports during 1984-85, combined with a record harvest, have severely depressed oil prices over the last ten months. Issue prices for RSBO are now at Rs. 11,000 per MT.

Oil requirements at Rs. 12,500/MT are compared with those at Rs. 11,000:

	PY-6	PY-7	PY-8	PY-9	PY-10	TOTAL
Issue Price						
Rs. 12,500	10,556	36,960	41,360	25,520	20,159	134,555
Rs. 11,000	11,996	42,000	47,000	29,000	22,908	152,904
Difference	(1,440)	(5,040)	(5,640)	(2,749)	(18,349)	

Depending on GOI policy on imports, it is possible that issue prices will rise above Rs. 11,000 and even substantially beyond. Each increase Rs. 1,000/MT would effectively reduce the oil requirement by 9%. This provides some flexibility.

INFLATION

As the present program will operate for 10 rather than 7 years, the increased capital requirement reflects the impact of inflation during the period to date, as well as anticipated inflation in the remaining four years. The additional capital requirement can be computed as the difference between the present value of the expenditure stream (presented in the revised MYOP) as on PY-6, less the original investment translated to 1984-85 prices. The appropriate rate for conversion of original time series data can be obtained through semi-log linear regression fit to the time-series data on wholesale prices.

The project investment schedule for the period 1978-79 to 1984-85, as per the original document in 1978-79 prices was Rs. 1,222.51 million, phase year-wise as:

PY-1	PY-2	PY-3	PY-4	PY-5	PY-6	PY-7
135.64	262.19	164.08	141.03	159.61	173.26	189.4

A semi-log linear regression for wholesale price time-series data for the last 15 years produces a geometric growth of 8.66% (R sq = 0.98; Correlation Coefficient 0.98; Standard Error 0.074). This translates to 1985-86 prices of around Rs. 1.700 million.

The outlay through PY-6 was Rs. 1082.78 million. Projected expenditures for PY-7 through PY-10 are Rs. 677.9 million. The present value of projected expenditures stream at test discount rate of 14% (prime lending rate of term lending financial institutions) is Rs. 2180 million.

Thus, the increase in expenditure is equal to the Present Value of the Expenditure Stream (Rs. 2180 million) - Rs. 1,700 million. The resulting Rs. 480 million can be attributed to the delayed start of the project (1979) and staggered initiation of activities in the participating states. The same amount, translated into volume oil, works out to 43,650 MT.

WORKING CAPITAL

The original project intention was to utilize a portion of the "sinking fund" (Rs. 277 million) representing generations in excess of landed value as an element in leveraging commercial/cooperative bank finance for procurement of oilseeds (groundnut prices were estimated at Rs. 2,000/MT).

Subsequently, the resolution of audit issue included incorporation of a Rs. 425 million revolving fund. At the same time, NDDDB has worked with RBI and NABARD to modify application of Selective Credit Control regulations to state federations. This resolution, expected within the next six months, will probably result in margins and interest rates consistent with the emerging status of the federations and reflecting their substantial development investment.

At the same time, federations will require margin money, or a core working capital component of approximately 15% total working capital requirements. Of this, federations will contribute from their own resources (share capital, members deposits, procurement deposits, dealer deposits, etc.) NDDDB has proposed that it contribute toward both the core (plants, inputs) and fluctuating (oilseed) components of working capital, phasing the latter into the former. The core working capital would be made available to the federations as a long-term loan, on the same terms and conditions as for other capital.

It is noted that this approach is wholly consistent with commercial bank financing and the approach taken by the National Cooperative Development Corporation in financing processing units. It is, in fact, substantially more conservative than the latter. The total requirement is Rs. 500 million.

MAJOR ISSUES CONFRONTING OGCP

(USAID Mission)

A. OGCP Premise Issues

1. Restructuring the Market and Producer/Consumer Benefits: The arguments supporting the basic premises of the OGCP are presented in both the assessment report and the response to specific questions. To further substantiate the benefit to producers, a report is attached which reflects an advantage to cooperative member farmers over non-members in increased income, increased yields and input investments (See paper "Farmer Income, Investment and Product"). From discussions with individual farmers, the assessment team's conclusions are consistent with the findings presented in the paper.
2. Financial and Economic Feasibility of Vegetable Oil Processing: In addition to the comments and findings given in the assessment report and response to specific questions, the financial projections for the individual state federation processing operations are attached. The projections reflect the achievement of profitability by all state federations in the operating year 1986-87 (PY 8) and improvement in profitability for the following years.
3. Raw Material Constraint: The issue of raw material availability has been covered in the assessment report and in the answers to specific questions; however, one additional point should be included. While technological break-throughs in improved seed will help production, the application of available technology is having a significant impact on production. For example, by adopting more optimum seed spacing over the current practice, up to a 51 percent yield is being achieved in groundnut production.

B. Revolving Fund/Working Capital Issues

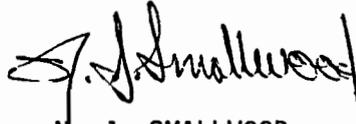
The specific issues raised in this section are covered in both the assessment report and the response to specific questions with the exception of the point about interest rates charged to federations by NDDB from the revolving fund. Short-term loans to the federations are made at a rate of 10.5 percent as compared to 12.5 percent for the best commercial rate and 14.5 percent for the average commercial rate. It would probably be to everyone's benefit for NDDB to raise the interest rate to a level equivalent to commercial banks. Long-term application of the special rate could impede the vitality of the federations by promoting less than optimum financial discipline/performance.

C. Implementation Issue - Reporting Format

A simplified, executive-management type reporting format was developed by the assessment team and is presented in Table 1 of the assessment report.

62

The reporting format includes by major project category (sub-system) both financial inputs and performance outputs. The performance outputs were selected on the basis of determining what are the key objectives. For each project category for a given year, the relationship between performance output and financial input may lag (processing capacity, for example). From a management overview perspective, the focus should be on comparing actual to planned for each line item (both financial inputs and performance outputs). Significant variances (>5 percent) should be explained in detail. It should be understood that the reporting format presented is a starting point. The final format should reflect the needs of those people who have the management responsibility for the project. Keeping the document simple and clear, however, is highly recommended.



N. J. SMALLWOOD

FARMER INCOME, INVESTMENT AND PRODUCTION

A central thesis of the OGCP is that a stable and remunerative price pulls production.

The project attempts to provide the farmer with a remunerative price and to create confidence that the farmer will receive such a price.

It is believed that confidence in price encourages additional investment by the farmer, in increased area and/or in inputs required to increase productivity.

Farmer investment is supported by: 1) coordination of credit; 2) coordination and/or direct provision of inputs; 3) agricultural extension services.

What evidence exists to support the theses cited:

- 1) "Impact of NDDB's Oilseeds Project on Farmers of Saurashtra" by Shah and Modak (Economic and Political Weekly, September, 22, 1984) covered the 1981-82 crop year;
- 2) "Yield Gains and an Assured Market to Soybean Growers: An Evaluation of the M.P. Oil Federation" by D.C. Sah and H.R. Chandrashekher (July 1985) covered the 1983-84 crop year.

Is there evidence of increased farmer incomes?

Table 1.

Marginal, Small and Medium non-members in OGS villages received higher incomes per acre than did members. OGS large farmer members received more than did non-members.

Save in the case of marginal farmers, OGS members received between 7% and 13% more than farmers in semi-control villages (villages without societies but in geographical proximity to OGS villages).

Again with the exception of marginal farmers, OGS members received between 41% and 83% more than farmers in control villages (villages outside the shadow of OGCP influence).

Table 2.

For yellow soybean, except for medium farmers OGS members received between 12% to 30% more than non-members in the same village, with the weighted average coming to 9.6% higher income. For black soybean, except for medium farmers, the difference ranged from 15% to 26% more than non-members. OGS members received between 25% to 60% more than farmers in non-Oilfed villages.

Table 3.

With two minor exceptions OGS members in Saurashtra received a higher price per metric ton of groundnut than did non members in the same village (3%-7%), farmers in semi-control villages (.5%-7%), and control villages (6%-30%).

Table 4.

With the exception of medium scale yellow soybean farmers in non-Oilfed villages, MP members received higher prices per mt of soybean than did non-members and farmers in non-Oilfed villages. Members received between .45% and 11% more for yellow soybean than did non-members in the same village. Large farmers received 9% more than their counterparts in non-Oilfed villages; small farmers received 16% more than their counterparts.

OGS members received between 16% and 47% more for black soybean than did non-members in the same village and comparable farmers in non-Oilfed villages.

Is there evidence of increased yields?

Table 5

OGS members in Saurashtra attained yields of between .7% and 5.7% higher than non-members in the same village; 3%-49% more than farmers in semi-control villages; and 29%-56% more than farmers in control villages.

Table 6

Non-members in Oilfed villages had average yields 2.5% higher than members. In all other cases of yellow and black soybean cultivation, members received higher yields than did non-members and farmers in non-Oilfed villages, with differences ranging from 2.5% to 17.5%.

Did OGS members invest more than non-members?

Table 7

In Saurashtra, large and marginal non-members in OGS villages invested 12% and 1% more than did comparable OGS members. In all other instances OGS members invested more than non-members in OGS villages (3%-32%); in semi-control villages (10%-71%); and control villages (13%-71%).

Table 8

Results in MP are mixed: small and medium members invested 8%-14% more in yellow soybean than did non-members in the same village; large farmer non-members invested 16% more than members. Small and medium scale farmers in non-Oilfed villages invested 14% to 32% more than did OGS members; large farmers in non-Oilfed

h5

villages invested 1.5% less. Small farmer non-members in OGS villages invested 37% more in black soybean cultivation than members; large farmer members invested 16% more in black soybean than did non-members.

Do OGS members use more inputs (seed, fertilizer, pesticides, labor and bullock power)?

Table 9.a.

OGS members growing irrigated groundnut invested more in every input than did non-members in the same village (except seed where non-members used .8% more), in semi-control and control villages. OGS members used:

- * between 6% and 66% more fertilizer
- * between 3% and 41% more seed
- * between 78% and 100% more pesticides
- * between 21% and 29% more hired labor
- * between 25% and 43% more family labor
- * between 28% and 56% more bullock days

Table 9.b.

Input use by unirrigated groundnut farmers in Saurashtra follows the same pattern. The sole exception is greater use (23%) of family labor by non-members in OGS villages. OGS members used:

- * between 16% and 61% more fertilizer
- * between 4% and 40% more seed
- * between 59% and 98% more pesticides
- * between .4% and 36% more hired labor
- * between 11% and 29% more family labor
- * between 4% and 18% more bullock days

Table 10

With the exceptions of seed rate and bullock days, MP OGS members used more fertilizer (30%), pesticides (96-100%) and labor (15-17%) than did non-members in the same village and farmers in non-Oilfed villages.

Table 1

Income per Acre from Groundnut in Saurashtra

Area	Large >10 acres	Medium 5-9.99	Small 2.5-4.99	Marginal <2.49
OGCP Society Village				
Members	817	875	740	484
Non-Members	749	879	806	904
Semi-Control Village	742	756	689	510
Control Village	134	269	435	536
Estimated Income				
OGCP Society Village				
Members	12255	6562.5	2775	726
Non-Members	11235	6592.5	3022.5	1356
Semi-Control Village	11130	5670	2583.75	765
Control Village	2010	2017.5	1631.25	804
Difference in Income				
OGCP Society Village				
Members	0	0	0	0
Non-Members	-1020	30	247.5	630
Semi-Control Village	-1125	-892.5	-191.25	39
Control Village	-10245	-4545	-1143.75	78
Percentage Difference				
OGCP Society Village				
Members	0.00%	0.00%	0.00%	0.00%
Non-Members	-8.32%	0.46%	8.92%	86.78%
Semi-Control Village	-9.18%	-13.60%	-6.89%	5.37%
Control Village	-83.60%	-69.26%	-41.22%	10.74%

Note: Semi-Control villages fall within shadow of OGS villages;
Control villages lie outside project shadow. In other
respects villages are demographically similar.

Marginal farmers represent insignificant portion of sample

Table 2

Income per Acre from Soybean in Madhya Pradesh

Soybean & Farmer Type	Oilfed Villages		Non-Oilfed Villages
	Member	Non-Member	
Yellow			
Small	901	633	357
Medium	854	921	491
Large	869	763	649
Weighted Average	871	787	483
Black			
Small	768	650	
Medium	494	512	
Large	684	506	
Weighted Average	662	506	
Difference in Income/Acre			
Yellow			
Small	0	-268	-544
Medium	0	67	-363
Large	0	-106	-220
Weighted Average	0	-84	-388
Black			
Small	0	-118	
Medium	0	18	
Large	0	-178	
Weighted Average	0	-156	
Percentage Difference in Income			
Yellow			
Small	0.00%	-29.74%	-60.38%
Medium	0.00%	7.85%	-42.51%
Large	0.00%	-12.20%	-25.32%
Weighted Average	0.00%	-9.64%	-44.55%
Black			
Small	0.00%	-15.36%	
Medium	0.00%	3.64%	
Large	0.00%	-26.02%	
Weighted Average	0.00%	-23.56%	

Table 3

Average Price/MT of Groundnut Received by Saurashtra farmers

Area	Large >10 acres	Medium 5-9.99	Small 2.5-4.99	Marginal <2.49
OGCP Society Village				
Members	3770	3710	3830	3760
Non-Members	3660	3750	3540	3820
Semi-Control Village	3500	3690	3690	3710
Control Village	2630	3490	3370	3000
Rupee Difference in Price				
OGCP Society Village				
Members	0	0	0	0
Non-Members	-110	40	-290	60
Semi-Control Village	-270	-20	-140	-50
Control Village	-1140	-220	-460	-760
Percentage Difference in Price				
OGCP Society Village				
Members	0.00%	0.00%	0.00%	0.00%
Non-Members	-2.92%	1.08%	-7.57%	1.60%
Semi-Control Village	-7.16%	-0.54%	-3.66%	-1.33%
Control Village	-30.24%	-5.93%	-12.01%	-20.21%

Note: Semi-Control villages fall within shadow of OGS villages;
Control villages lie outside project shadow. In other
respects villages are demographically similar.

Marginal farmers represent insignificant portion of sample

Table 4

Average Price per MT of Soybean received by Madhya Pradesh farmers

Yellow	Small	Medium	Large
Cooperative Village			
Member	3516	3299	3328
Non-Member	3102	3284	3180
Non-Oilfed Village	2929	3969	3027
Black			
Cooperative Village			
Member	3246	3008	3265
Non-Member	1984	2679	ND
Non-Oilfed Village	ND	ND	2800
Rupee Difference in Price Paid			
Yellow			
Cooperative Village			
Member	0	0	0
Non-Member	-414	-15	-148
Non-Oilfed Village	-587	670	-301
Black			
Cooperative Village			
Member	0	0	0
Non-Member	-1532	-620	ND
Non-Oilfed Village	ND	ND	-528
Percentage Difference in Price Paid			
Yellow			
Cooperative Village			
Member	0.00%	0.00%	0.00%
Non-Member	-11.77%	-0.45%	-4.45%
Non-Oilfed Village	-16.70%	20.31%	-9.04%
Black			
Cooperative Village			
Member	0.00%	0.00%	0.00%
Non-Member	-47.20%	-20.61%	ND
Non-Oilfed Village	ND	ND	-16.17%

Table 5

Groundnut Yield in Saurashtra: *Kilograms/Hectare

Area	Large >10 acres	Medium 5-9.99	Small 2.5-4.99	Marginal <2.49
OGCP Society Village				
Members	297.92	354.97	334.29	328.00
Non-Members	298.02	347.87	331.85	309.27
Semi-Control Village	288.16	306.20	317.59	166.67
Control Village	152.28	154.35	175.58	231.67
Yield Difference in Kg/Ha				
OGCP Society Village				
Members	0	0	0	0
Non-Members	0.10	-7.10	-2.44	-18.73
Semi-Control Village	-9.76	-48.77	-16.70	-161.33
Control Village	-145.64	-200.62	-158.71	-96.33
Percentage Difference in Yield				
OGCP Society Village				
Members	0.00%	0.00%	0.00%	0.00%
Non-Members	0.03%	-2.00%	-0.73%	-5.71%
Semi-Control Village	-3.28%	-13.74%	-5.00%	-49.19%
Control Village	-48.89%	-56.52%	-47.48%	-29.37%

Note: Semi-Control villages fall within shadow of OGS villages;
Control villages lie outside project shadow. In other
respects villages are demographically similar.

Marginal farmers represent insignificant portion of sample

Table 6

Soybean Yield in Madhya Pradesh: Kilograms/Hectare

Cooperative Villages	Black	Yellow	Average
Members	330	400	390
Non-Members	300	410	380
Non-Oilfed Villages	330	330	330

Difference in Yield: Kg/Ha

Cooperative Villages	Black	Yellow	Average
Members	0	0	0
Non-Members	-30	10	-10
Non-Oilfed Villages	0	-70	-60

Difference in Yield: Percentage

Cooperative Villages	Black	Yellow	Average
Members	0.00%	0.00%	0.00%
Non-Members	-9.09%	2.50%	-2.56%
Non-Oilfed Villages	0.00%	-17.50%	-15.38%

Table 7

Average Investment Per Acre of Groundnut in Saurashtra

Area	Large >10 acres	Medium 5-9.99	Small 2.5-4.99	Marginal <2.49
OGCP Society Village				
Members	306.03	441.90	539.90	373.20
Non-Members	341.77	425.28	368.34	377.17
Semi-Control Village	267.02	374.15	483.28	108.23
Control Village	266.83	170.48	156.19	159.00
Investment Difference in Rupees/Ha				
OGCP Society Village				
Members	0	0	0	0
Non-Members	35.74	-16.62	-171.56	3.97
Semi-Control Village	-39.01	-67.75	-56.62	-264.97
Control Village	-39.2	-271.42	-383.71	-214.2
Investment Difference in Percentage				
OGCP Society Village				
Members	0.00%	0.00%	0.00%	0.00%
Non-Members	11.68%	-3.76%	-31.78%	1.06%
Semi-Control Village	-12.75%	-15.33%	-10.49%	-71.00%
Control Village	-12.81%	-61.42%	-71.07%	-57.40%

Note: Semi-Control villages fall within shadow of OGS villages;
Control villages lie outside project shadow. In other
respects villages are demographically similar.

Marginal farmers represent insignificant portion of sample

Table 8

Average Investment per Acre of Soybean in Madhya Pradesh

Soybean & Farmer Type	Oilfed Villages		Non-Oilfed Villages
	Member	Non-Member	
Yellow			
Small	583	536	664
Medium	532	458	701
Large	459	534	452
Black			
Small	375	514	
Medium	343	343	
Large	410	342	
Difference in Investment: Rs/Ha			
Yellow			
Small	0	-47	81
Medium	0	-74	169
Large	0	75	-7
Black			
Small	0	139	ND
Medium	0	0	ND
Large	0	-68	ND
Difference in Investment: Percentage			
Yellow			
Small	0.00%	-8.06%	13.89%
Medium	0.00%	-13.91%	31.77%
Large	0.00%	16.34%	-1.53%
Black			
Small	0.00%	37.07%	ND
Medium	0.00%	0.00%	ND
Large	0.00%	-16.59%	ND

Table 9.a.

Input use by Groundnut Cultivators in Saurashtra

	OGS Members	Non-Members	Semi-Control	Control
Irrigated Area				
Fertilizer: kg/acre	61.89	57.90	42.72	21.17
Seeds: kg/acre	46.95	47.32	45.33	27.43
Pesticides: l/acre	1.66	0.36	0.32	0.00
Labor: days/acre				
Hired	16.05	12.64	11.81	11.34
Family	14.19	8.83	10.65	8.02
Total Labor	30.24	21.47	22.46	19.36
Bullock days/acre	7.63	5.46	5.22	3.32
Difference in Inputs				
Fertilizer: kg/acre	0.00	-3.99	-19.17	-40.72
Seeds: kg/acre	0.00	0.37	-1.62	-19.52
Pesticides: l/acre	0.00	-1.30	-1.34	-1.66
Labor: days/acre				
Hired	0.00	-3.41	-4.24	-4.71
Family	0.00	-5.36	-3.54	-6.17
Total Labor	0.00	-8.77	-7.78	-10.88
Bullock days/acre	0.00	-2.17	-2.41	-4.31
Difference in Inputs: Percentage				
Fertilizer: kg/acre	0.00%	-6.45%	-30.97%	-65.79%
Seeds: kg/acre	0.00%	0.79%	-3.45%	-41.58%
Pesticides: l/acre	0.00%	-78.31%	-80.72%	-100.00%
Labor: days/acre				
Hired	0.00%	-21.25%	-26.42%	-29.35%
Family	0.00%	-37.77%	-24.95%	-43.48%
Total Labor	0.00%	-29.00%	-25.73%	-35.98%
Bullock days/acre	0.00%	-28.44%	-31.59%	-56.49%

Note: Semi-Control villages fall within shadow of OGS villages; Control villages lie outside project shadow. In other respects villages are demographically similar.

Table 9.b.

Input use by Groundnut Cultivators in Saurashtra

	OGS Members	Non-Members	Semi-Control	Control
Unirrigated Area				
Fertilizer: kg/acre	47.09	39.46	36.81	18.31
Seeds: kg/acre	47.19	45.25	45.33	28.18
Pesticides: l/acre	1.33	0.54	0.02	0.02
Labor: days/acre				
Hired	9.82	8.27	6.29	9.78
Family	8.86	10.88	6.29	7.87
Total Labor	18.68	19.15	12.58	17.65
Bullock days/acre	4.39	4.20	3.58	3.78
Difference in Inputs				
Fertilizer: kg/acre	0.00	-7.63	-10.28	-28.78
Seeds: kg/acre	0.00	-1.93	-1.86	-19.01
Pesticides: l/acre	0.00	-0.79	-1.25	-1.31
Labor: days/acre				
Hired	0.00	-1.55	-3.53	-0.04
Family	0.00	2.02	-2.57	-0.99
Total Labor	0.00	0.47	-6.10	-1.03
Bullock days/acre	0.00	-0.19	-0.81	-0.61
Difference in Inputs: Percentage				
Fertilizer: kg/acre	0.00%	-16.20%	-21.83%	-51.12%
Seeds: kg/acre	0.00%	-4.09%	-3.94%	-40.28%
Pesticides: l/acre	0.00%	-59.40%	-94.29%	-98.50%
Labor: days/acre				
Hired	0.00%	-15.78%	-35.95%	-0.41%
Family	0.00%	22.90%	-29.01%	-11.17%
Total Labor	0.00%	2.52%	-32.66%	-5.51%
Bullock days/acre	0.00%	-4.33%	-18.45%	-13.90%

Note: Semi-Control villages fall within shadow of OGS villages; Control villages lie outside project shadow. In other respects villages are demographically similar.

Projected Profitability Statement of Dilseed Growers Federations 1985-86

IV	Andhra Pradesh	Madhya Pradesh	Gujarat	Karnataka	Tamil Nadu
Expected Level of Dilseed Procurement (MT)	49244	51835	75532	26518	30071
a. Sales Revenue from Plant Operations	216.47	176.33	358.74	121.41	117.82
b. Variable Costs of Plant Operations	199.60	154.36	324.38	104.83	99.21
c. Contributions (a-b)	16.88	21.96	34.36	16.58	18.61
d. Fixed Costs					
d1. Administrative, Establishment, Publicity etc.	6.21	6.82	10.97	5.68	5.70
d2. Developmental Expense-Production Enhancement (Non-Reimbursable after 1986-89)	0.00	0.00	0.00	0.00	0.00
d3. Plant Fixed Expenses	9.92	9.40	11.90	5.33	6.68
d4. Depreciation	7.46	9.69	8.16	5.03	4.64
d5. Annual Average Interest on Loans	9.75	14.06	16.50	7.49	8.78
Sub-Total 'd'	33.34	39.97	47.53	23.53	25.80
e. Profit from Miscellaneous Activity	5.39	2.14	2.15	2.15	2.15
f. Expense to be met from Processing Plant Operations (d-e)	27.95	37.83	45.38	21.38	23.65
g. Profit Before Tax (c-f)	-11.07	-15.87	-11.03	-4.81	-5.04
h. Tax	0.00	0.00	0.00	0.00	0.00
i. Profit after Tax (g-h)	-11.07	-15.87	-11.03	-4.81	-5.04

Projected Profitability Statement of Oilseed Growers Federations 1986-87

III	Andhra Pradesh	Madhya Pradesh	Gujarat	Karnataka	Tamil Nadu
Expected Level of Oilseed Procurement (MT)	79127	83291	121367	42610	49605
a. Sales Revenue from Plant Operations	428.61	349.12	710.30	240.39	233.28
b. Variable Costs of Plant Operations	395.20	305.64	642.27	207.56	196.43
c. Contributions (a-b)	33.41	43.49	68.03	32.82	36.85
d. Fixed Costs					
d1. Administrative, Establishment, Publicity etc.	6.21	6.82	10.97	5.68	5.70
d2. Developmental Expense-Production Enhancement (Non-Reimbursable after 1988-89)	0.00	0.00	0.00	0.00	0.00
d3. Plant Fixed Expenses	9.92	9.40	11.90	5.33	6.68
d4. Depreciation	7.46	9.69	8.16	5.03	4.64
d5. Annual Average Interest on Loans	9.75	14.06	16.50	7.49	8.78
Sub-Total 'd'	33.34	39.97	47.53	23.53	25.80
e. Profit from Miscellaneous Activity	8.66	3.43	3.45	3.45	3.45
f. Expense to be met from Processing Plant Operations (d-e)	24.68	36.54	44.08	20.08	22.35
g. Profit Before Tax (c-f)	8.74	6.95	23.95	12.74	14.50
h. Tax	4.37	3.47	11.97	6.37	7.25
i. Profit after Tax (g-h)	4.37	3.47	11.97	6.37	7.25

BEST AVAILABLE COPY

82

Projected Profitability Statement of Oilseed Growers Federations 1987-88

	Andhra Pradesh	Madhya Pradesh	Gujarat	Karnataka	Tamil Nadu
Expected Level of Oilseed Procurement (MT)	121636	128038	186570	65501	76255
a. Sales Revenue from Plant Operations	647.97	527.80	1073.82	363.41	352.67
b. Variable Costs of Plant Operations	597.46	462.06	970.98	313.79	296.96
c. Contributions (a-b)	50.51	65.74	102.84	49.62	55.71
d. Fixed Costs					
d1. Administrative, Establishment, Publicity etc.	6.21	6.82	10.97	5.68	5.70
d2. Developmental Expense-Production Enhancement (Non-Reimbursable after 1988-89)	0.00	0.00	0.00	0.00	0.00
d3. Plant Fixed Expenses	9.92	9.40	11.90	5.33	6.68
d4. Depreciation	7.46	9.69	8.16	5.03	4.64
d5. Annual Average Interest on Loans	9.75	14.06	16.50	7.49	8.78
Sub-Total 'd'	33.34	39.97	47.53	23.53	26.80
e. Profit from Miscellaneous Activity	13.32	5.28	5.30	5.30	5.30
f. Expense to be met from Processing Plant Operations (d-e)	20.02	34.69	42.23	18.23	20.50
g. Profit Before Tax (c-f)	30.49	31.05	60.62	31.39	35.21
h. Tax	15.25	15.52	30.31	15.70	17.61
i. Profit after Tax (g-h)	15.25	15.52	30.31	15.70	17.61

Projected Profitability Statement of Oilseed Growers Federations 1988-89

	Andhra Pradesh	Madhya Pradesh	Gujarat	Karnataka	Tamil Nadu
Expected Level of Oilseed Procurement (MT)	133000	140000	204000	71621	83379
a. Sales Revenue from Plant Operations	818.26	666.51	1356.03	458.92	445.35
b. Variable Costs of Plant Operations	754.47	583.49	1226.16	396.26	375.00
c. Contributions (a-b)	63.79	83.02	129.87	62.66	70.35
d. Fixed Costs					
d1. Administrative, Establishment, Publicity etc.	6.21	6.82	10.97	5.68	5.70
d2. Developmental Expense-Production Enhancement (Non-Reimbursable after 1988-89)	6.50	4.30	20.00	5.00	5.00
d3. Plant Fixed Expenses	9.92	9.40	11.90	5.33	6.68
d4. Depreciation	7.46	9.69	8.16	5.03	4.64
d5. Annual Average Interest on Loans	9.75	14.06	16.50	7.49	8.78
Sub-Total 'd'	39.84	44.27	67.53	28.53	30.80
e. Profit from Miscellaneous Activity	14.56	5.77	5.80	5.80	5.80
f. Expense to be met from Processing Plant Operations (d-e)	25.28	38.50	61.73	22.73	25.00
g. Profit Before Tax (c-f)	38.51	44.52	68.14	39.93	45.35
h. Tax	19.25	22.26	34.07	19.97	22.68
i. Profit after Tax (g-h)	19.25	22.26	34.07	19.97	22.68

db